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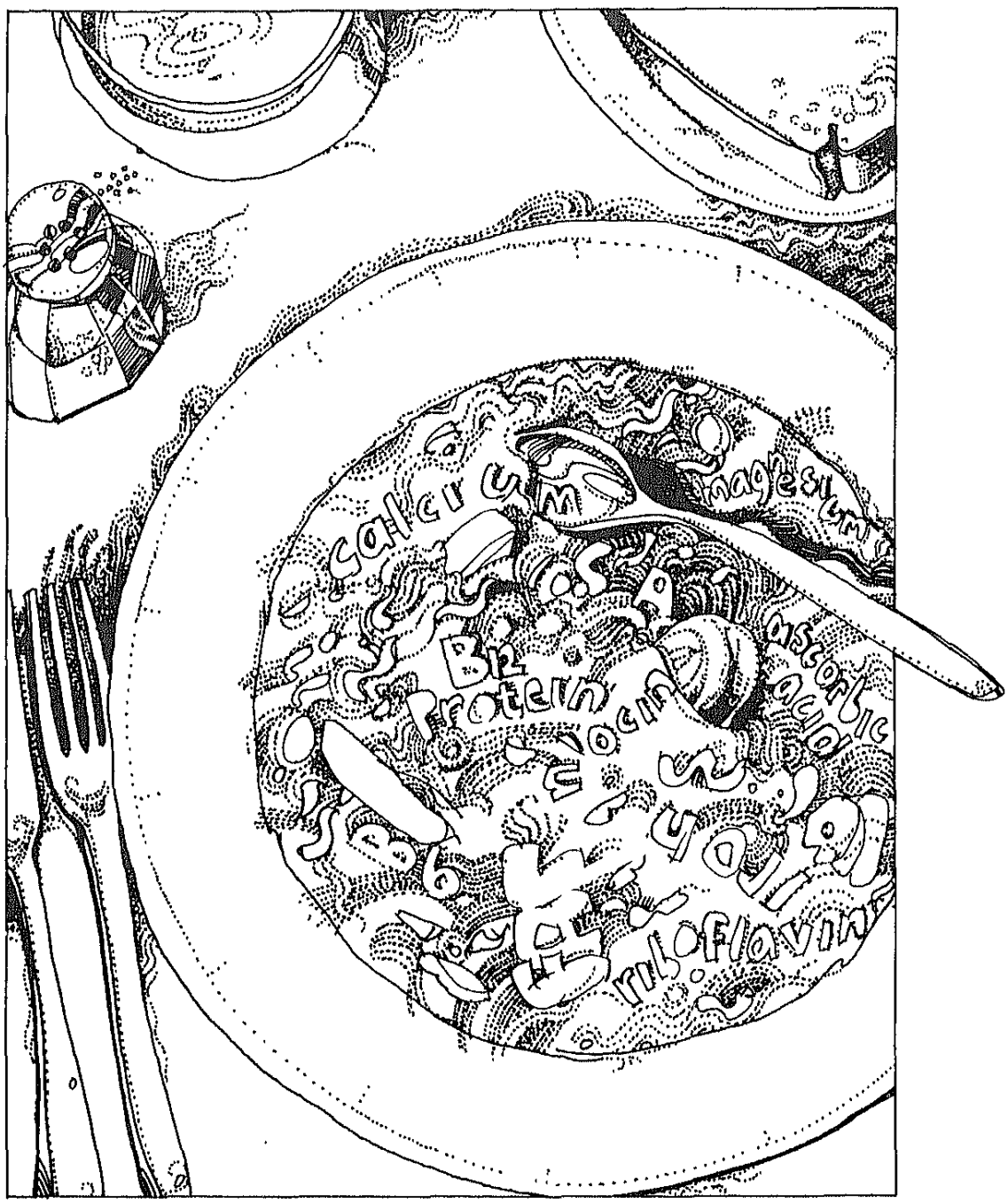

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Nutrients and the U.S. Food Supply

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Nutrients and the U.S. Food Supply

Concern over the changing nutrient content of the U.S. food supply due to increased processing, and the findings of the 1977-78 Nationwide Food Consumption Survey that show U.S. per capita food intake decreasing have attracted much attention to the subject of nutrition.

This issue of the National Food Review focuses on the growing interest among consumer groups, Government regulatory agencies, and Congress over the nutritional value of what we eat and its overall significance to the health of the Nation.

Included are an assessment of the nutrient content of our food supply, a look at a non-traditional food form which may play an important role in boosting nutritional intakes, and an analysis of the advantages and disadvantages of enriching and fortifying food products. Articles on these topics begin on page 10.

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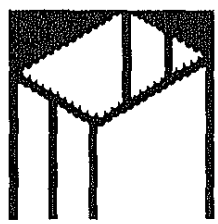

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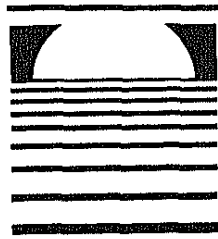

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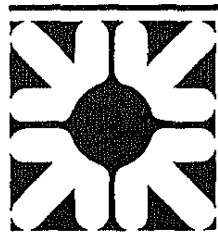

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Domestic Food Programs

Kathryn Longen and Joyce Allen
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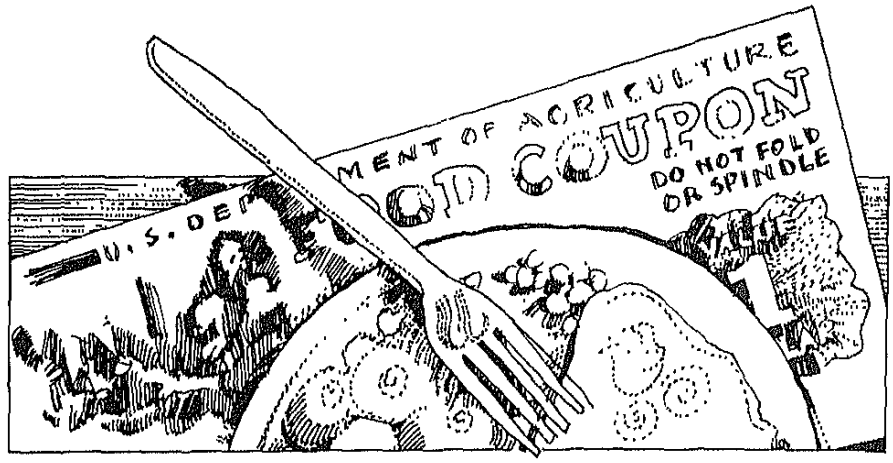

The state of the economy and implementation of new program rules largely determine participation levels for the Food Stamp Program (FSP). Although the general economy improved in the fourth quarter of 1980, most economic indicators suggest that the rate of unemployment will remain relatively high in 1981. Thus, participation in the FSP due to unemployment of the household head will likely also continue high in the coming months. If the unemployment rate increases, participation in the FSP will continue to climb. Each 1-percentage point increase in unemployment adds an estimated 750,000 to 1 million people to food stamp rolls.

An average of 21.6 million people a month participated in the FSP between April and June 1980. This represents a 2-percent increase over the preceding quarter and a 17-percent increase over the same period in 1979.

New program rules will also have an impact on program participation. Simplified application procedures for the elderly, designed to encourage their participation in the FSP, were mandated by the Food Stamp Act of 1977 and were initiated in August 1980. Households in which all members apply for or receive Supplemental Security Income (SSI) benefits can now apply for food stamps at Social Security offices.

The 1980 FSP amendments include two provisions that are designed to restrict program eligibility—stricter eligibility criteria for college students and tightened asset standards for the nonelderly. Most college students will be dropped from the program as a result of provisions that require physically fit college students aged 18 through 60 to either work 20 hours or more a week, participate in a Federal work-study program, enroll in a work-incentive program under the Aid to Families with Dependent Children Program (AFDC), or to serve as heads of households containing dependents.

The asset limitation that applies to nonelderly households was reduced from $1,750 to $1,500 on October 1, 1980. For households containing two or more persons, one of whom is 60 years or older, the asset ceiling remains at $3,000.

Because few persons were affected by these program revisions, it is expected that the net change in participation will be modest.

Federal expenditures for the FSP have increased considerably since early 1979. The value of coupons distributed under the FSP rose by 35.6 percent from the second quarter of 1979 to the second quarter of 1980. This increase may be due to rising food costs and higher participation resulting from slower economic growth and elimination of the purchase requirement. Coupons worth $2.3 billion were issued during the second quarter of 1980—a 4.5-percent increase from the preceding quarter.

The average benefit per participant declined from $35.21 in the January-March quarter to $34.85 in the April-June quarter. This 1-percent reduction in per capita benefits may be due to a slight increase in net income by either new participants or persons who were already enrolled in the program. Food stamp benefits are equal to the cost of the Thrifty Food Plan for the household's size minus 30 percent of a household's net monthly income.

The Special Supplemental Food Program for Women, Infants and Children (WIC) reached an average of 2 million persons in the second quarter of 1980. Eligibility for WIC extends to pregnant women, mothers of infants (up to 6 months), nursing mothers (up to 12 months), infants, and children (up to 5 years of age) who are at nutritional risk due to inadequate income and diet. Under the program, participants receive either vouchers, which can be redeemed at participating retail food stores for specific foods, or food packages.

In the second quarter of 1980, food and administrative costs for WIC amounted to $192.0 million, up from $140.3 million during the same quarter of 1979. Average benefits per person rose to $26.53 in the second quarter of 1980.

The Needy Family Program attempts to alleviate hunger and malnutrition in low-income households by providing nutritious agricultural commodities to eligible needy persons residing on Indian reservations and in the Trust Territory of the Pacific and the Commonwealth of the Northern Marianas. From April to June 1980, an average of 79,400 persons received $3.8 million in commodity assistance under this program.

Commodities worth $4.7 million and cash in-lieu of commodities totaling $13.3 million were distributed to participants in the Nutrition Program for the Elderly during the second quarter of 1980.

Child Nutrition Programs

Preliminary data show an average of over 21.4 million children received meals under the National School Lunch Program (NSLP) during the second quarter of 1980, a decline of 3.4 percent from the same period in 1979. In contrast, participation in the School Breakfast Program increased 7.2 percent from the second quarter of 1979, to an average of 3.0 million children. Expenditures for the School Breakfast Program totaled $72.1 million during the April-June quarter of 1980.

While participation in the National School Lunch Program decreased, cash expenditures for the program rose to $565.7 million. Increases in the Federal per-meal reimbursement rates or changes in the types of meals served may have resulted in the 12.1-percent increase in program expenditures from the second quarter of 1979. For example, the number of paid meals served during the second quarter of 1980 declined

Retail Food Prices: Review of 1980

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by 5.2 percent. The number of free and reduced-price meals, however, increased by .6 and 6.7 percent, respectively.

Participating schools receive a Federal reimbursement based on the number of meals served. A basic rate of 18.5 cents was given for each lunch served from July 1, 1980, to December 31, 1980, plus 83.5 cents for each free lunch. Reimbursement for reduced-price lunches is established at 10 to 20 cents less than the free lunch rate, depending on the State-established price charged the student. These USDA national payment factors are adjusted semiannually according to changes in the Consumer Price Index for food away from home for all urban consumers.

Over the past decade, the Federal Government has assumed a greater portion of the cost of the National School Lunch Program. Federal payments for fiscal year 1978 (most recent year data are available) were estimated at 51.2 percent of total school lunch contributions. Student payments for meals accounted for 27.3 percent, and State and local contributions amounted to 21.5 percent of total funding.

In comparison, for fiscal year 1970, Federal payments amounted to 25.6 percent of program funding, while State and local, and student payments comprised 24.6 and 49.8 percent, respectively.

The National School Lunch Act of 1946 requires that non-Federal funds be supplied according to a two-part matching formula. The first requirement pertains only to the basic per-lunch rate of 18.5 cents. These funds must be matched by three non-Federal dollars for every Federal dollar provided. Matching funds may be obtained from three sources: student payments for meals, State revenues, or local community revenues. The required amount of matching funds is reduced in States with per capita income below the U.S. average, proportional to the income difference.

The second part of the formula applies specifically to appropriated or other available State funds. Revenues from this source must be supplied at a rate of 30 cents for every Federal dollar spent on meal costs for the program. These required funds may be applied toward the 3-to-1 provision. ■

Retail food prices rose 8.6 percent in 1980, the smallest annual increase since 1977, and significantly less than the 14.6 percent rise in nonfood prices. This helped moderate overall inflation

The farm value of foods in 1980 averaged 5.4 percent above 1979 levels and accounted for about one-fifth of the food price increase. About half of this increase was due to the 8.4 percent rise in the farm-to-retail price spread last year, with the remainder due to prices for fish and imported foods, which averaged 11.7 percent higher.

Farm Value of Foods

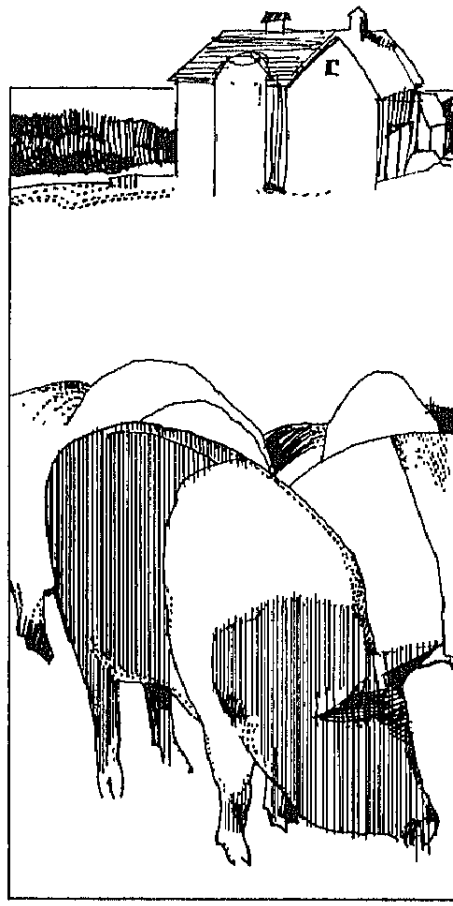
Large production and adequate stocks of many farm foods kept commodity prices low in the first half of 1980, leading to the relatively small 5.4 percent farm value increase for the year. In the first half of the year, large hog slaughter led to record supplies of pork. Poultry supplies were also ample. Mild winter weather resulted in an abundant citrus crop. At the same time, real consumer incomes were falling as the economy entered a recession, and demand for more expensive foods slackened. As a result, the farm value of foods rose very slowly in the first half of 1980 and was the major moderating factor in food prices.

In contrast, a sharp rise in the farm value of foods occurred in the third quarter. Livestock prices rose substantially, reflecting planned production cutbacks, seasonal marketing patterns, and adverse weather conditions. Prices for fresh fruits and vegetables rose seasonally. The farm value of fats and oils also rose sharply due to reduced production of oilseeds. Although the farm value of foods continued to climb in the fourth quarter, it increased less rapidly due to harvests.

Farm-to-Retail Price Spread

The farm-to-retail price spread represents about two-thirds of the cost to consumers of domestically produced foods. Reflected in the spread are labor, packaging materials, transportation, energy, profits, taxes, rent, depreciation, advertising, and numerous other inputs in the processing and distribution of food.

Labor is the largest component, accounting for about 46 percent of food marketing costs. Changing labor costs reflect wage increases, employee benefits, and productivity. Wage increases tend to rise in line with the rate of inflation, with larger increases generally occurring in periods of sustained productivity gains, and smaller increases occurring when productivity declines. Cost-of-living adjustments are included in many labor contracts of food system workers. Wages increased about 9.5 percent last year.



Employee benefits, such as paid vacations, pensions, and health programs, represented about 10.8 percent of labor costs in 1972 and 12.6 percent in 1979. Because rising nominal incomes have pushed workers into higher tax brackets, benefits which are not taxable as income have become an attractive alternative to wage increases. The cost of benefits rose about 12 percent in 1980, adding about 2 percent to total labor costs.

Declining productivity in food manufac-

turing and retailing heightened unit labor costs in the late 1970's. The trend in consumer demand for more highly processed foods and more eating away from home added less productive service-oriented labor functions to food production. In 1980, however, preliminary data indicate that there was a slight gain in productivity in food manufacturing. This productivity gain held down labor costs and was a major reason that the increase in the farm-to-retail price spread last year was lower than the general inflation rate.

The cost of direct-use energy—energy used in food processing factories and retail grocery stores—represents about 6 percent of the farm-to-retail price spread. Transportation and packaging costs are two important food marketing components whose prices have been affected by higher petroleum prices in recent years. Prices for these three inputs rose very rapidly in early 1980 and, along with labor, were the primary cause of food price rises through mid-year. Because energy prices leveled off some in the second half of the year, increases in transportation and packaging costs slowed as well. Nonetheless, prices for transportation and packaging materials each averaged 14 percent higher than in 1979, and energy prices were 35 percent higher.

Corporate profits account for about 6 percent of food industry marketing costs. Unit profits for food manufacturers and food retailers in 1980 averaged lower than in 1979 because consumer demand was not strong enough to allow a complete pass-through of higher farm values and marketing costs to retail prices. This was another major moderating factor holding the 1980 farm-to-retail price spread below the inflation rate.

Fish and Imported Foods

Fish and imported food prices rose 11.7 percent in 1980, adding about 2 percentage points to the retail food price increase. Higher sugar prices were the major cause as production fell in some of the major producing countries. Fish prices rose 9.2 percent and roasted coffee prices, although falling through much of the year, still averaged 10.6 percent above 1979 levels.

1980 Food Product Highlights

Larger retail meat and poultry supplies were one of the major causes of the smaller rise in retail food prices in 1980 than in 1979. In response to favorable hog-to-corn price ratios in early 1979, pork producers increased output 7 percent in 1980. The resulting larger supplies were evident in the first half of the year. Poultry producers also increased output, mostly in the first half of the year. Beef production averaged slightly higher than in 1979, mainly due to drought-induced slaughter of nonfed cattle last summer and fall. This resulted in an increase in per capita meat and poultry supplies of more than one percent over 1979 levels and led to a retail price rise for these foods of 3.1 percent, the smallest annual increase since 1977.

Egg production last year was the largest since 1972. Combined with the large supply of meat and poultry, the high level of egg production caused retail egg prices to average 1.8 percent below 1979 levels.

Prices for dairy products were moderated by high levels of Government and commercial stocks. Milk production in 1980 was about 3.5 percent higher than in 1979. Large meat and poultry supplies and declining real incomes diminished demand for dairy products. However, rising processing and delivery costs and farm-level price increases mandated by the price-support program pushed retail prices up 9.8 percent.

Retail Food Price Changes

Food Category	1977	1978	1979	1980
		Percent Change		
All Food	6.3	10.0	10.9	8.6
Food Away From Home	7.6	9.0	11.2	9.9
Food At Home	6.0	10.5	10.8	8.0
Meats	-2.2	18.7	17.0	2.9
Beef and Veal	-.5	22.9	27.3	5.7
Pork	-5.4	12.9	1.5	-3.4
Other Meats	-.6	17.8	14.7	3.8
Poultry	.6	10.3	5.0	5.1
Fish and Seafood	10.7	9.5	9.8	9.2
Eggs	-3.2	-5.5	9.5	-1.8
Dairy Products	2.7	6.7	11.6	9.8
Fats and Oils	10.2	9.5	8.0	6.6
Fruits and Vegetables	9.2	11.1	8.0	7.3
Sugar and Sweets	5.1	12.2	7.8	22.9
Cereals and Bakery Prod.	1.6	8.9	10.1	11.9
Nonalcoholic Beverages	50.7	5.7	5.0	10.6
Other Prepared Foods	3.5	8.0	10.1	10.8

Source: Bureau of Labor Statistics, based on the Consumer Price Index, all urban consumers

Food Spending and Income

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Retail prices for fats and oils averaged 6.6 percent above 1979 levels. Record oilseed production in 1979, led by soybeans, along with only a small rise in oilseed usage, contributed to the relatively small increase in fats and oils prices. Lard production also rose, primarily reflecting increased 1980 hog slaughter. These factors partly offset higher marketing costs.

Prices for fruits and vegetables in 1980 averaged 7.3 percent higher than in 1979, the smallest annual rise since 1976. The 1979-80 apple and orange harvests both set records, providing large supplies for much of 1980. Production of many vegetables, especially potatoes, lettuce, carrots, and tomatoes, was also very high. Large stocks of processed fruits and vegetables, including frozen concentrate orange juice, tomatoes, and peas, and competition from fresh supplies exerted downward pressure on prices for those foods. Additionally, many promotional discounts on processed fruits and vegetables were offered as high interest rates made inventory holding more costly.

Prices for sugar and sweets averaged 22.9 percent higher than in 1979. World sugar production in 1979-80 was about 6 million metric tons below consumption, the first deficit in seven years. Reduced production in many producing countries including the USSR, Cuba, India, and Thailand offset record production in the European Community.

Food marketing costs, especially for energy and packaging materials, dominated price increases for cereals and bakery products (up 11.9 percent) and nonalcoholic beverages (up 10.6 percent). Higher sugar prices have been an additional inflationary factor for these food groups.

Prices for food away from home in 1980 averaged 9.9 percent higher than in 1979. Moderate increases in wholesale food prices and slackening demand kept the rise in these prices below the inflation rate. Consumers purchased less food away from home as real incomes fell and travel was reduced because of higher fuel prices. ■

The national income and production accounts that incorporate benchmark information from the 1972 and 1977 economic censuses are being revised. Consequently, all Personal Consumption Expenditure (PCE) data and income back to 1968 will be revised. The revisions will appear in a future issue of the NFR.

The Nation's personal consumption expenditures for food neared the $300 billion level during the third quarter of 1980, just 4 years after reaching the $200 billion mark. Expenditures in that period went up roughly one-half, but only about 7 percent reflected a gain in real volume. The other 43 percent was due to food price inflation.

Third-quarter 1980 food expenditures averaged $298 billion at a seasonally adjusted annual rate, of which $226 billion was spent on food at home and $72 billion on food away from home. For the third consecutive quarter, the portion of the food dollar allocated to away-from-home eating dropped.

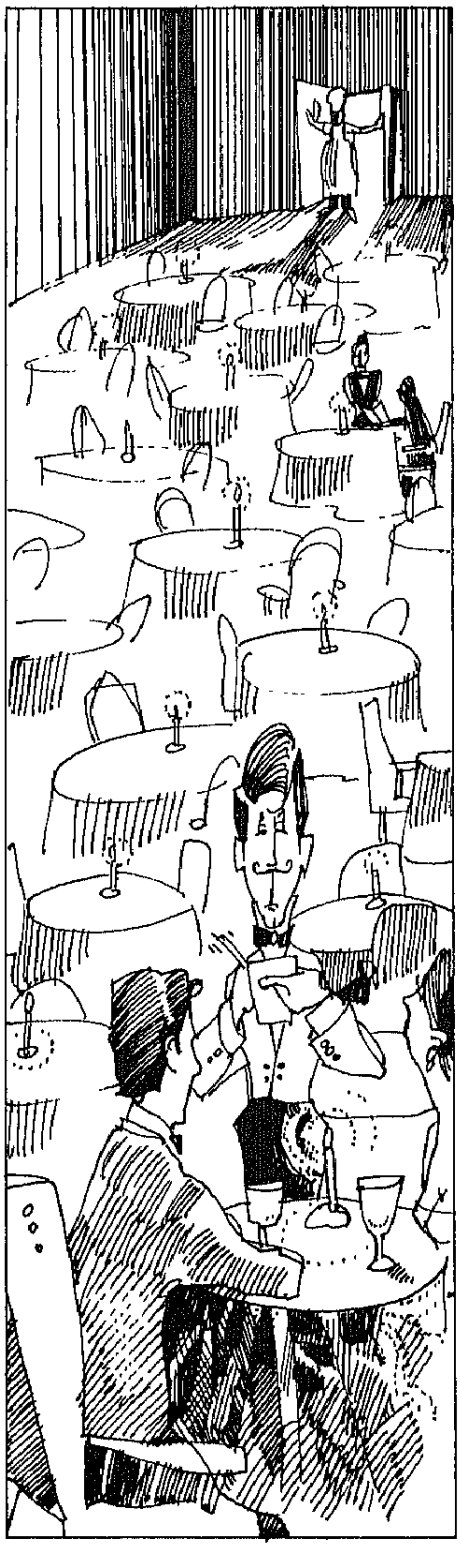
While food-at-home expenditures advanced about 3.7 percent above the second quarter of 1980, this gain was due to higher grocery store food prices. Apparent real volume showed no change. Compared with the third quarter of 1979, however, real volume was about 3 percent higher. Expenditures in current dollars were about 12.5 percent higher; the rest largely reflected higher prices.

Food away-from-home expenditures rose a little more than 1 percent above the second quarter of 1980, but this increase was less than the increase in prices. Real volume dropped about 1 percent, the sixth decline during the last seven quarters. Compared to third quarter 1979, real volume was 1.5 percent lower.

All of the decline in away-from-home eating volume was due to a sharp drop in sales at the Nation's restaurants. Fast food chain sales, adjusted for price changes, were about 2 percent above a year ago.

Disposition of Income

The Nation's disposable personal income (DPI) totaled over $1.8 trillion during the third quarter, or about a 3 percent advance



above the second quarter. Real DPI advanced slightly, less than 1 percent, but was still below the third quarter of 1979.

The percent of DPI allocated to food averaged 16.5 percent during the third quarter, unchanged from the second quarter. Food at home PCE accounted for 12.5 percent while away-from-home eating accounted for 4 percent.

Among other personal consumption expenditures, durable good purchases advanced from the depressed levels of the second quarter as new car sales increased. At $120 billion, they were at about the same level as the first quarter, but significantly lower in real terms. PCE for services rose in both real and current dollars.

The savings rate averaged 4.7 percent during the third quarter, a slight drop from 4.9 percent during the second quarter. ■

Personal Consumption Expenditures (Major Items)

	1977	1978	1979	1978 II	1978 III	1978 IV	1979 I	1979 II	1979 III	1979 IV[1]	1980 I	1980 II	1980 III
	Billions—current dollars[2]												
Food, excluding alcoholic beverages	217.9	240 7	267 8	237 2	243 1	251.7	260.0	263.1	267.7	279.8	286.1	288.9	297.9[1]
For use at home	162 7	179.3	200 6	176.8	180.8	187.3	193 3	197.7	201.2	209.3	214.1	217.9	226.0
Food away from home	55.2	61 4	67.2	60 4	62 3	64 4	66.8	65.4	66.5	70.6	72.0	71 0	71.9
Nondurables excluding food	263 4	289 9	329 2	284.6	293.6	306 4	311.1	317.7	336.4	350.9	365.9	365.2	367.9
Clothing and shoes	82 4	91.2	90.6	89.9	92 7	96 8	95.5	96 9	100.9	103.6	103.9	104 1	107.3
Gas and oil	46.7	50 9	65 1	49 0	51.5	55.0	58.4	60.2	68.1	73.4	83.6	83.6	79.2
Fuel oil and coal	13.1	14.0	18 2	14 4	13.4	13.6	15.4	17.2	20.2	20.4	21.7	22.2	23 4
Alcoholic beverages	28 8	31.0	34.0	30.5	31.5	32.2	32 9	33.3	35.0	35.8	36.5	36 9	36.9
Other	92.5	102 9	112 4	100.8	104.7	108.9	108.9	110 1	112.2	117.7	120.2	118.3	120.8
Durable goods	178 8	200.3	217.8	200 4	203 5	212.1	213.8	208.7	212.5	216.2	220.2	195.7	208.5
Motor vehicles and parts	81 6	91 2	91 3	93.5	92.4	94.9	97.7	89.1	88.8	89.4	92.9	71.8	79.7
Furniture and household equipment	70 9	77.6	85 7	76.5	78.9	82.7	82.1	84.2	87.5	88.9	88.2	86.0	89.9
Other durables	26.3	31 5	35.8	30.4	32 2	34.5	34.0	35.4	36.2	37.9	39.1	37.9	38.9
Services	549.8	619.8	700.0	609.1	629.1	645 1	669.3	686.0	711.2	733.4	757.3	776.9	808.9
Housing	187 3	212 2	241 6	208.9	215.0	222 1	229.5	236.3	245.0	255 2	263.4	272.1	282.0
Household operation	82.0	91 4	102.0	88 9	92.5	93 7	99.2	99.1	102.6	105.5	105.2	110 1	116.5
Transportation	43 6	49.2	55 7	48 7	49 7	50 8	52.9	54.5	56.8	58.4	59.6	60.4	63.0
Other	236.9	267 2	300.7	270 6	271.9	278.5	287.7	295.4	306.8	314.3	329.1	334.3	347.4
otal personal consumption expenditures	1,210 0	1,350.9	1,509.8	1,331 2	1,369.3	1,415.4	1,454 2	1,475.9	1,527.7	1,580.4	1,629 5	1,626.6	1,683.3
Total disposable income	1,305.1	1,458 4	1,624 3	1,437.3	1,476 5	1,524.8	1,572.2	1,601.0	1,638.4	1,638.1	1737.4	1,755.9	1,810.7
avings rate (percent)	5 0	4.9	4.5	4 8	4.7	5.0	5 4	5.4	4.3	3.5	3.7	4.9	4 7
	Billions—1972 dollars												
ood excluding alcohol	143 3	143 4	144.1	142.4	143 1	145.3	143.8	143.2	145.0	148.0	149.1	148.3	147.8
Food for use at home	106.7	106.3	107 4	105.1	105.7	107.1	105.6	106.8	109.0	110.6	112.0	112.6	112.4
Food away from home	36.7	37.1	36.7	37 3	37.4	38.2	38.2	36.4	36.0	37.4	37 1	35.7	35 4
londurables excluding food	189.1	199.9	205 2	197.0	201.6	206.6	204 3	200.9	203.5	207 1	205.3	199.8	199.3
urables	138.2	146 7	147.0	147 8	147 5	152.1	150.2	144.8	146.9	146.7	145.4	127.4	132.9
ervices	390 8	410.8	428.2	407.6	413.1	416.4	423.1	426.0	430.6	433 6	437.0	435.6	442.0
otal personal consumption expenditures	861 7	900.8	924.1	894 8	905.3	920 3	921.8	915.0	925.9	935.4	936.5	910.8	921.9
Disposable personal income	929 5	972.6	994.1	966.1	976.2	991.5	996.6	993 0	993.5	996.2	998.5	983 1	991.7

[1]Preliminary
[2]Quarterly data are adjusted at annual rate

Source US Dept of Commerce Total may not add due to rounding

Food Advertising

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Foods are overwhelmingly the most advertised group of all consumer products in the United States. Food products lead in expenditures for network and spot television advertisements, discount coupons, trading stamps, contests, and other forms of premium advertising. In other media—newspapers, magazines, newspaper supplements, billboards, and radio—food advertising expenditures rank near the top. Food manufacturers spend more on advertising than any other manufacturing group, and the Nation's grocery stores rank first among all retailers.

In this article, total food advertising is examined to focus on specific research questions:

- What is the total cost of advertising and promoting food products?
- How much does each of the components contribute to the total food advertising bill?
- What portion of the consumer's grocery store food dollar goes towards the overall cost of advertising? What are the net benefits?
- Which food products account for the bulk of advertising expenditures?
- Did advertising expenditures as a portion of total food expenditures increase or decline during the 1970's? What other shifts occurred during this period?
- What are the questions on the impacts of advertising on nutrition, demand for food, information about food, and food prices?

Total Cost

Advertising, for purposes of this analysis, is defined as any strategy to influence consumer choice among different brands or retail outlets. Generic advertising, which is designed to influence consumer choice among products, such as oranges and dairy products is excluded. Its cost, compared to nongeneric advertising, is very minimal.

There are essentially two types of advertising in food marketing: "pull" and "push" promotion. Pull advertising is any strategy aimed at directly influencing consumer choice, and thus includes radio, television, newspapers, magazines, discount coupons, and incentive premiums such as trading stamps, contests, and other premiums. Push promotion is aimed at the distributor to gain shelf space, especially favored space, in retail food outlets. This includes advertisements in the trade press, direct selling costs, in-store displays, and sales efforts through trade fairs and conventions. In addition, there are also related push promotion activities such as manufacturers' allowances to retailers including discounts, rebates, price packs, and reimbursements for local advertising.

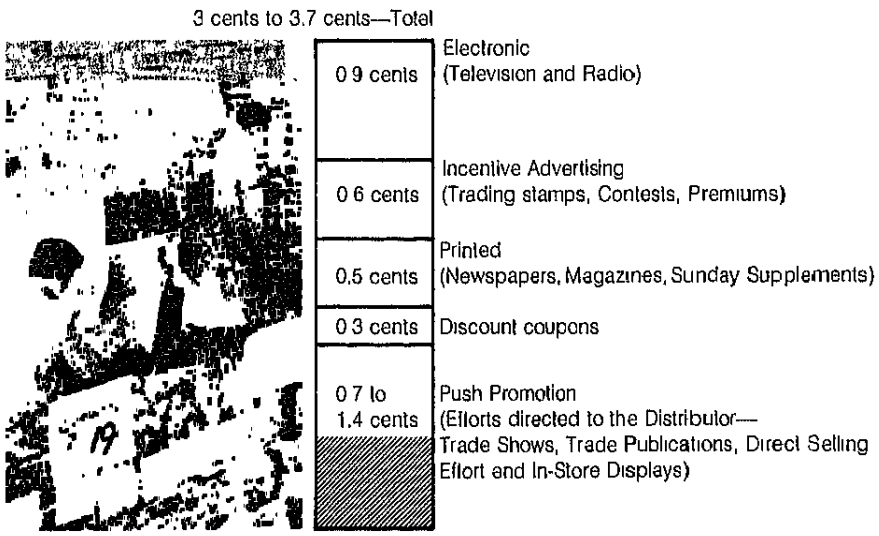
In 1979, based upon estimates derived from industry data, the total expenditures by food marketers for these two types of promotion was at least $7-$9 billion. Pull advertising accounted for about $5 billion, excluding a number of items for which no estimates are available, such as the cash value and operating costs for contests and sweepstakes, fees paid to advertising agencies, and salaries paid to internal advertising staffs. Mass media advertising, which tends to be national in scope with regional options, accounted for about $2.5 billion of the pull advertising. Newspaper advertising, which by contrast is local, accounted for approximately $1 billion. Consumer advertising, however, was slightly greater at about $1.2 billion. Discount coupons averaged about $500 million, including both the face value and handling allowance.

In terms of importance within the food bill, mass media accounted for about half (46 percent) of the total pull advertising bill, with the bulk of it coming from television. About one-fifth came from newspaper advertising, while one-fourth was accounted for by consumer premiums. Coupons accounted for about one-tenth of the total.

"Pull" Advertising as a Percent of Food-at-Home Expenditures

	Retailers	Manufacturers	Total
		Percent	
1970	1.2	1 6	2 8
1974	0.6	1 7	2 3
1976	0 7	1.5	2.2
1978	0.7	1 5	2 2
1979	0.7	1 5	2.2

Portion of the Consumer Food-At-Home Dollar Allocated to Advertising and Promotion, FY 81



Food "Pull" Advertising by Retailer, Manufacturer, and Restaurant

	1970		1974		1976		1978		1979	
	$mil	Pct	$mil	Pct	$mil	Pct.	$mil	Pct.	$mil	Pct.
Food Advertising										
Retailer	1100	42	860	34	990	28	1280	28	1480	29
Manufacturer	1450	55	1700	61	2200	62	2730	61	3080	60
Restaurant	100	4	230	8	340	10	490	11	580	11
Total	2650	100	2790	100	3530	100	4500	100	5120	100

Source: ESS estimate derived from secondary data

Major Types of "Pull" Advertising in Food Marketing

Type	1970	1974	1976	1978	1979
			million dollars		
Mass media[1]	954	1120	1572	2037	2334
Network television	337	429	571	825	1006
Spot television	413	503	761	892	974
Network radio	7	8	13	113	25
Spot radio	69	62	80	88	94
Magazines	99	91	121	186	201
Newspaper supplements	9	14	15	16	17
Billboards	14	13	11	14	17
Newspaper ads[2]	500	557	768	908	1017
Consumer premium advertising[3]	1048	887	835	1057	1219
Trading stamps	640	296	287	59	411
Other	408	591	548	698	808
Coupons[4]	154	223	350	490	546
Total value*	2656	2787	3525	4492	5116

[1]Leading National Advertisers
[2]Incentive Marketing
[3]Newspaper Advertising Bureau
[4]Estimated from data supplied by A. L. Nielsen

*Not included
- Manufacturers and retailers administrative and salary expenses for internal advertising and promotion staffs
- Fees paid to independent advertising agencies
- Administrative and handling costs for incentive advertising—the cost of producing games and sweepstakes
- The cash value of contests and sweepstakes prizes
- The value of free samples
- Coupon redemption costs
- Miscellaneous—flyers, postage, and other expenses

About $2 billion or 40 percent of the total pull advertising in 1979 was allocated to electronic advertising. About one-fourth was accounted for by printed matter and another fourth by premiums. Of the total pull advertising for food in 1979, food retailers accounted for about $1.5 billion or about 30 percent, while food manufacturers accounted for about $3 billion (60 percent). Restaurants (mostly fast food chains) spent about $600 million, or 11 percent of the total pull advertising.

Estimating the cost of push promotion is difficult because of unavailability of data as well as the subjectivity of separating promotional from nonpromotional cost. But based on survey results, industry interviews, and trade sources, it is estimated that between $2.3 and $4 billion was spent on trade fairs, printed media, direct sales forces, and in-store displays in 1979. In addition, industry interviews indicate a value of $2-$4 billion in manufacturers' allowances to retailers for discounts, rebates, price packs, and reimbursements for local advertising.

Shifts During the 1970's

The mix of food advertising underwent major changes in the last decade with trading stamps and the electronic media moving in opposite directions. The sharp drop in the use of trading stamps by food retailers since the early 1970's strongly affects the relative shares assumed by radio, television, and discount coupons. In 1970, about one-fourth of food advertising expenditures were accounted for by trading stamps. Since 1976, this figure has dropped to less than 8 percent. Total consumer premium advertising fell from 40 percent of food pull advertising in 1970 to about 25 percent since 1976. Discount coupons, on the other hand, showed a sharp gain, rising from about 6 percent to 10 percent of the total advertising dollar. In dollar terms, they rose 3.5 times, from about $150 million to about $550 million.

The major growth area in food advertising has been the use of radio and television, which increased its share of the food advertising dollar, from about $800 million in 1970 to $2.1 billion in 1979. The percentage share rose from less than a third to over

two-fifths. Network television advertising showed the sharpest relative gain, from 12 to 20 percent, while spot television rose from 15 to 20 percent. Network and spot radio continued to comprise an insignificant portion of the total. Printed material accounted for about 25 percent of the total pull advertising dollar during the decade. Newspapers accounted for approximately 20 percent with magazines accounting for 4 percent, and newspaper supplements and billboards about 1 percent.

Because of the decline in trading stamp use, the retailers' share of the food advertising dollar dropped sharply from 42 percent, in the early 1970's, to about 33 percent. Food manufacturers' share grew to two-thirds by the mid-1970's and has remained at that level.

Within the food-at-home category, the data indicate that pull advertising as a percentage of food-at-home expenditures had remained constant at about 2.2 percent in recent years. A marked drop from the early 1970's can be attributed to the c in the use of trading stamps. Estima push promotion are not available for previous to 1979, but the available da dicate that the ratio of push promot pull has remained consistent over th decade.

Advertising for the Nation's resta and eating places rose sixfold, from million to $600 million, over the dec the 1970's. Almost all of this increa due to promotion by fast food chains

Changes in the Composition of Types of "Pull" Advertising

	1970		1974		1976		1978		1979	
	$mil	Pct.	$mil	Pct.	$mil	Pct.	$mil	Pct.	$mil	Pct.
Electronic (Radio/television)	832	32	1002	35	1425	40	1821	41	2099	41
Printed	622	24	675	24	915	25	1124	25	1252	24
Premiums	1048	39	887	31	835	23	1057	24	1219	24
Coupons	154	6	223	8	350	9	490	11	546	11
Total	2650	100	2787	100	3525	100	4492	100	5116	100

Shares of the "Pull" Advertising Dollar in Food Marketing

Type	1970	1974	1976	1978	1979
			Percent		
Mass media	36	40	44	45	46
Network television	12	15	16	18	20
Spot television	15	18	22	20	19
Network radio	*	*	*	*	*
Spot radio	3	2	2	2	2
Magazines	4	3	3	4	4
Newspaper supplements	*	1	*	*	*
Billboards	1	*	*	*	*
Newspaper ads	19	20	22	20	20
Consumer premiums	39	32	24	24	24
Trading stamps	24	11	8	8	8
Other	15	21	16	16	16
Coupons	8	8	10	11	11
Total	100	100	100	100	100

*Less than 1/2 of 1 percent

Food Advertising Compared to Other Consumer Products—19

Type	Ranking Position in $ Volume	Port Adve for Cons Prod (per
Mass media	1st	
Network television	1st	
Spot television	1st	
Network radio	2nd	
Magazines	3rd	
Newspaper supplements	3rd	
Billboards	5th	
Incentive advertising	1st	
Trading stamps	1st	
Premiums	1st	
Newspapers		
Retailers	2nd	
Manufacturers	4th	
Discount coupons	1st	

Source: Derived from Industry Data

result, the portion of the total food advertising dollar accounted for by away-from-home eating rose from 4 percent in 1970 to 11 percent in 1979

Which Products?

Throughout the 1970's, highly processed foods have accounted for the bulk of total advertising. Almost all coupons, electronic advertising, national printed media advertising, consumer premiums (other than trading stamps), as well as most push promotion come from processed and packaged food products. In 1978, breakfast cereals, soft drinks, candy and other desserts, oils and salad dressings, coffee, and prepared foods accounted for only an estimated 20 percent of the consumer food dollar. Yet these items accounted for about one-half of all media advertising.

By contrast, highly perishable foods such as unprocessed meats, poultry, fish and eggs, fruits and vegetables, and dairy products accounted for over half of the consumer food-at-home dollar. Yet these products accounted for less than 8 percent of national media advertising in 1978 ($140 million), and virtually no discount coupons. These products tend to be most heavily advertised by the retail sector in local newspapers, where they account for an estimated 40 percent of retail grocery newspaper ads.

Consumer Cost and Benefit

When measured against total food-at-home expenditures, total measured food advertising accounts for between 3 to 3.7 cents out of every dollar spent on food in the Nation's grocery stores. A little less than one cent of this amount is accounted for by electronic advertising (mostly television) while incentives account for 0.6 cents. The printed media accounts for 0.5 cents and about one-third of one cent is comprised of discount coupon redemptions. The estimate for the cost of push promotion ranges from 0.7 to 1.4 cents. This range is necessary because of the difficulty in separating nonpromotional aspects of direct selling—transportation, technical, and other related services.

Against this gross consumer cost must be weighed the joint products or services provided by advertising. In the case of electronic advertising, the consumer who views commercial television receives entertainment, while readers of magazines and newspapers receive reduced prices on these publications. The consumer pays directly for some premiums, but also receives nonfood merchandise as an incentive to purchase the product. The "benefits" must therefore be subtracted from the gross cost to the consumer to fully assess the net cost of advertising.

Also significant are the impacts of advertising on food demand, nutrition, and competition among food manufacturers. The bulk of manufacturers' advertising is concentrated on a small portion of consumer food products. Has advertising changed the consumption of these highly processed products relative to more perishable foods such as meats, produce, and dairy products? Has the nutritional content of U.S. food consumption been influenced by food advertising? Has competition among manufacturers and retailers been enhanced or weakened by advertising? These are important questions and warrant continued research. ■

References

Gallo, Anthony E. and Larry Hamm, "Push Promotion in Food Marketing," NFR-11, Summer 1980

Gallo, Anthony E., "Incentive Advertising in Food Marketing," NFR-7, Summer 1979

Gallo, Anthony E., and Thomas Stucker, "Coupon Use in Food Marketing," NFR-2, April 1978

Gallo, Anthony E. and William Boehm, "Contests and Sweepstakes in Food Marketing," NFR-6, Winter 1979

Gallo, Anthony E. and William Boehm, "The Use of Trading Stamps in Food Stores," NFR-4, Fall 1978

Gallo, Anthony E. and William Boehm, "Newspaper Advertising in Food Marketing," NFR-8, Fall 1979

Gallo, Anthony E., John Connor, and William T. Boehm, "Mass Media Food Advertising," NFR-9, Winter 1980

Soyfoods: Catching On in the U.S. Diet

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Soybeans are finding a new place in the U.S food system.

Primarily used as a high protein source in animal feed, soybeans are the second biggest U.S. cash crop. Production of soybeans has risen from a 3 million bushel crop in 1920 to a record 2.3 billion bushels in 1979. The United States grows more than half the world's supply.

American food scientists and consumers are seeking ways to use soybeans in more food products, and as a food item in its natural form. In 1977, a USDA survey of the major soy protein producers estimated that use of soy protein products would increase 71 percent by 1985. A possible factor responsible for the new interest in edible soy products was the increase in food prices in the early 1970's, so today's increasing food prices should continue this surge in soybean usage.

As consumers become better acquainted with soy proteins, foods with soy ingredients may become increasingly popular. Soy protein may be moving into the same stage margarine was 10 to 15 years ago. Initially, margarine competed against butter only on a price basis. Concern over saturated fats and cholesterol has helped to bolster sales of margarine and today, margarine outsells butter by a 3 to 1 margin.

There are, however, some problems in using soybeans for food. These include beany flavor, disagreeable taste, and difficulty in cooking—problems common to many other beans. Considerable effort has been extended by food technologists to reduce or eliminate these problems in soybeans and to make soy products palatable to the American taste.

Soybeans were introduced into the American diet on a large commercial scale in 1973 as "meat extenders" as meat prices climbed. The premixed product was combined with fresh hamburger. This beef blend was prevalent until meat prices dropped. A 1974 USDA study found that when the price differential for the extended product versus ordinary hamburger dropped below 20 cents a pound, most people stopped buying it.

Products containing soybean oil have long been used by American consumers, and about 300 items now contain soy proteins on the average supermarket shelf.

New technology enables textured vegetable protein (TVP) to be fabricated into meat analogs. The production process of the analogs enables the products to have the look, taste, and texture of the meat that they imitate. Companies are producing basic analogs that can be used as a total or partial replacement for meat in a variety of prepared foods, such as beef stroganoff and chicken a la king.

The 1977 USDA survey of major soy protein producers revealed soy protein production was nearly 1 billion pounds for that year and estimated production would reach 1.7 billion pounds by 1985. In 1976 (the most recent year of available data), human food uses accounted for 62 percent of soy protein use.

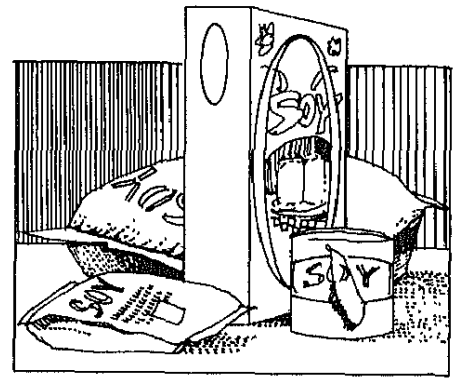
Another indication of the growing popularity of soy protein as food can be found in industry figures which show that in 1971 food use of soybeans was estimated to be around 10 million bushels annually or less than 1 percent of the crop. Today, almost 50 million bushels or nearly 2 percent of the total soybean production goes to human consumption each year (excluding oil).

Although meat product extension and replacement was predicted to be the primary market for textured plant protein, the growth area has been in pet foods, bakery ingredients, and dairy products.

Some retail stores, especially natural and health food stores, now sell soy flours, soy brans, soy grits, soybean oils, and textured vegetable products. Soy milk is also used in baby formulas. Plain soybeans and oriental versions, such as tofu, tempeh, and miso, are now moving from the health foods and co-op arena into American supermarkets. These oriental versions are further processing of the plain soybeans. This processing has reduced many of the problems found in using soybeans for food.

Tofu

Tofu (pronounced toe-foo) has been a major food staple and a source of protein in the oriental diet for thousands of years. It is a bland, custard-like product made from curdled soybean milk. Tofu is as much a part of Japanese culture and cookery as bread is in the United States. Annual per-capita consumption of tofu in Japan (70 12-oz. cakes) is much like the 73 loaves of bread consumed annually by the average American.



Tofu is also becoming more popular in the United States. Growth rates for tofu and related soybean food products have been estimated at 25-30 percent. In 1975, the U.S. had 65 stores that sold tofu; now the number is estimated to be around 190.

These shops are important developments for the soyfoods industry since they are one of the best ways to acquaint the public with soyfoods. Soy delis usually offer prepared, ready-to-eat dishes such as salads, burgers, shakes, pies, and soups made from soybeans.

Some people are adding tofu to their diets because of its nutritional value. In its fresh form, tofu contains 8 percent protein by weight and 53 percent when dried or frozen. It is a protein source that is low in saturated fats, sodium, and calories, and it contains no cholesterol.

Tofu's bland taste enables it to be used in a variety of ways. Mixed with other ingredients and spices it can be eaten as a main entree or as an accompaniment to a meal. It can be steamed, sauteed, pan-fried, baked, scrambled, marinated in sauces, crumbled raw in salads, and added to soups, and has other creative possibilities.

One of tofu's biggest attributes is its low cost. Each pound of soybeans will yield as much as 2.5 to 3 pounds of tofu. The cost of a 16 oz. container runs between 69 cents and $1.25. Tofu can be prepared at home, reducing the cost by about two-thirds.

Tofu is also easily digested. Some contend that this increases its chances of becoming a major food item in the Western diet, where it may be used in hospitals, nursing homes, and feeding programs for the elderly. School systems in California and Georgia are incorporating tofu in their lunch programs. Response from children has been good. So that tofu can be used in more lunch programs, USDA's Food and Nutrition Service has begun to develop specifications for using tofu in the National School Lunch Program and other child nutrition programs.

Other Soyfoods

Two newcomers to the American food system are tempeh and miso. Tempeh (tempay) is a fermented soybean cake from Indonesia, where it is a basic food for millions of people and uses more than 50 percent of the country's soybean crop. It is a highly digestible food, rich in protein (18.3 percent protein by weight in fresh form and 48.7 percent when dried), and one of the few nonmeat sources of vitamin B_{12}.

Tempeh tastes much like fried chicken. It can be eaten in its raw form, used in soups and stews, and fried. This adaptability gives it the potential of being a food of worldwide commercial interest in the years ahead.

Miso (mee-so), a fermented soybean paste, was virtually unknown in the United States before 1960. For centuries it has been a basic staple and flavoring for food in Japan and China. It contains an average of 12.5 percent soy protein. Miso is salty and sharp with a cheese-like taste, and has a peanut butter consistency. It is not usually eaten directly but used as the basis for soups and sauces. Different varieties of miso can be found such as rice, barley, and soybean miso. ■

References

Crop Production Report. Crop Reporting Board, ESS, USDA, Nov. 10, 1980.

Miner, Bert D. and William W. Gallimore. "Soy Protein Use Can Increase 71 percent by 1985." Farmer Cooperatives Reprint 4. USDA, May 1977.

Strayer, George, "The Battle of the Coconut Cow." *Soycraft*. Winter 1980. p. 51.

Shurtleff, William and Aoyagi, Akiko. *The Book of Tofu—Food for Mankind* Vol. 1. 1975. p. 16.

Morris, Charles E. "America's Gold—New Directions for Basic Commodities." *Food Engineering*. May 1980. p. 108.

Bannar, Robert. "Let's Talk Tofu." Food Engineering, May 1980. p. 126.

Farmer-to-Consumer Direct Marketing: Update

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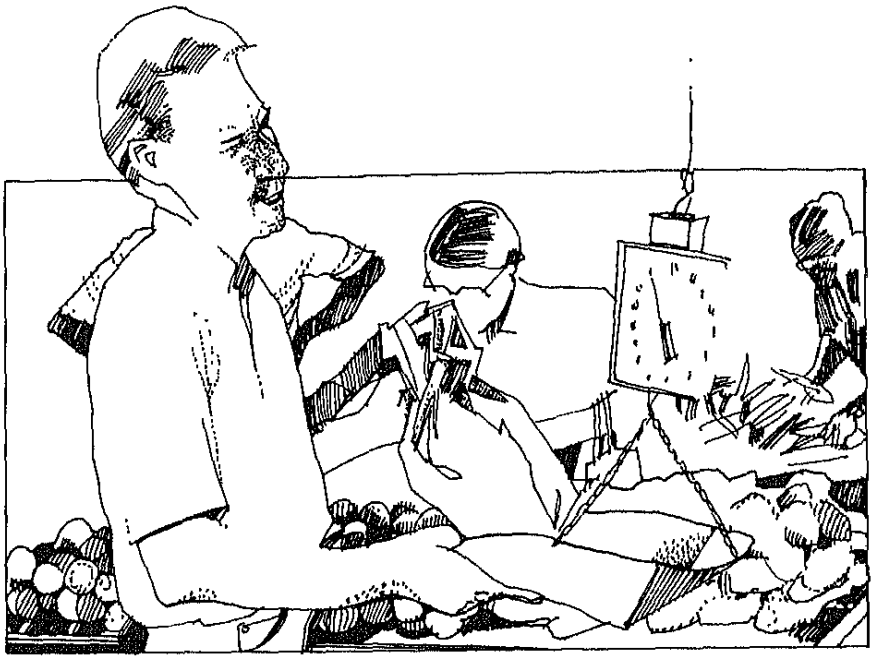

Farmers cite the higher prices that result from capturing "middleman's profits" and "reducing marketing costs" as a major reason for direct marketing their crops. These are the findings of surveys conducted in accordance with the 1976 Farmer-to-Consumer Direct Marketing Act, which mandates surveys in a selected group of States each year (See NFR-8, 9, and 11).

The most recent survey—conducted in December 1979—covered nine States: Colorado, Maryland, Delaware, New York, Connecticut, Massachusetts, Rhode Island, Tennessee, and Wisconsin. Because of small numbers of farmers in some States, data from Delaware and Maryland were combined. Also, Connecticut, Massachusetts,

Value of Products Sold Directly to Consumers, 1979

Item	Colorado	Maryland and Delaware[1]	New York	Three Southern New England States	Tennessee	Wisconsin	Nine State total
				Dollars			
Vegetables and melons:							
Sweet corn	112,084	970,261	5,833,660	3,473,709	13,095	120,402	10,523,211
Tomatoes	152,754	335,843	2,307,173	1,896,940	350,087	98,846	4,939,823
Melons	176,320	148,024	179,851	163,705	28,427	81,809	778,136
Potatoes	48,239	252,356	582,942	363,193	8,181	67,728	1,322,639
Green beans	17,967	97,570	208,047	360,205	11,675	17,210	712,674
Cabbage, broccoli, cauliflower, brussels sprouts	9,317	51,266	1,159,569	314,574	1,245	82,750	1,618,721
Squash	13,947	66,712	271,947	540,357	1,807	25,554	920,324
Peppers	42,317	4,326	308,446	321,374	0	6,499	882,982
Cucumbers	27,328	30,973	422,670	329,991	1,342	29,523	841,827
Pumpkins	7,156	243,710	383,013	502,439	0	57,159	1,173,477
Green peas	1,067	7,994	37,980	38,761	1,603	0	85,405
Asparagus	13,543	349,592	33,542	1,589	0	8,849	407,115
Sweet Potatoes	0	8,261	0	0	20,564	0	28,825
Other	121,718	130,152	12,897,377	375,208	2,098,608	1,497,645	17,120,706
Total vegetables and melons sales	743,757	2,697,040	24,808,217	8,480,045	2,536,812	2,091,974	41,155,645
Average vegetables sales per farmer	2,143	936	8,715	7,933	1,480	793	3,544
No. of farmers selling vegetables	347	2,875	2,823	1,091	1,738	2,740	11,614

[1]Treated as one State for reporting purposes because of small number of farms and sample size in some States

Value of Products Sold Directly to Consumers, 1979 —Continued

Item	Colorado	Maryland and Delaware[1]	New York	Three Southern New England States	Tennessee	Wisconsin	Nine State total
				Dollars			
Fruits and nuts:							
Apples	211,159	1,254,018	8,825,632	9,286,830	925,801	3,766,115	24,269,555
Strawberries	4,254	1,488,781	2,452,125	1,911,374	569,125	1,618,691	8,044,287
Other berries	266	26,000	873,429	535,614	12,851	91,208	1,539,368
Peaches and nectarines	301,494	1,528,605	575,600	1,172,548	253,439	0	3,831,886
Cherries	113,513	22,991	120,049	23,450	0	224,190	504,193
Pears	119,016	73,318	226,919	392,592	0	21,290	836,135
Grapes	1,276	23,005	58,390	57,662	0	2,662	142,804
Plums	16,727	14,704	110,853	157,853	0	907	300,850
Other	31,408	5,119	173,267	4,548	2,237	848,700	1,063,279
Total fruit and nuts sales	799,113	4,439,478	13,416,464	13,542,277	1,763,453	6,571,572	40,532,357
Average fruits and nuts sales per farmer	1,800	8,808	12,434	11,370	1,707	2,518	5,905
No. of farmers selling fruits and nuts	444	504	1,079	1,191	1,036	2,610	6,864
Floral and nursery:							
Total floral and nursery	12,128,940	5,962,277	12,417,404	23,218,761	3,217,193	32,763,028	89,707,603
Sales per farmer	32,344	13,250	7,471	17,225	3,015	32,471	14,838
No. of farmers selling floral and nursery products	375	450	1,662	1,348	1,067	1,009	5,911
Other products:							
Livestock, poultry, and livestock and poultry products	501,549	5,087,386	13,336,375	6,314,824	61,444	597,352	25,898,923
Processed fruit products (cider, jelly, jam, etc.)	2,222	123,886	782,083	951,446	0	115,498	1,975,235
Christmas trees and forest products	7,579	798,197	342,555	803,455	42,208	297,155	2,091,149
Honey and syrups	165,956	52,132	2,913,573	452,255	60,485	531,472	4,175,873
Dairy products	5,011,453	0	8,025,276	1,179,513	5,714	10,085	14,232,041
Other	1,155,189	4,861,595	10,513,338	3,335,406	2,037,413	18,114,683	40,017,624
Total other product sales:	6,843,948	10,923,196	35,913,200	12,836,899	2,207,264	19,666,345	88,390,852
Average sales of other products	9,324	3,130	6,364	3,807	678	1,935	3,194
Farmers selling other products	734	3,490	6,660	3,372	3,257	10,163	27,676
Total direct sales:	20,515,758	24,021,991	86,353,285	58,077,982	9,724,522	61,092,919	259,788,457
Average sales per farmer selling direct	10,372	5,136	8,505	12,150	1,433	4,045	4,934
No. of farmers selling direct	1,978	4,677	10,153	5,084	6,784	15,103	43,779
Total number of farmers in State	26,300	19,200	45,000	9,390	94,000	95,000	288,890
Percent of farmers selling direct	7.5	24.2	22.8	54.1	7 2	15.9	15.2
Percent cash receipts derived from direct marketing	.6	1.9	3.9	10.7	.5	1.4	2.0

and Rhode Island were combined into a "Southern New England" category Responses showed that:

- In the nine States, 44,000 farmers sold $260 million worth of products directly to consumers. This volume represented about 2 percent of total farm sales, varying from less than 1 percent in Colorado and Tennessee to almost 11 percent in the three Southern New England States.
- Leading products sold directly to consumers were nursery and floral products, apples, peaches, strawberries, sweet corn, and tomatoes.
- As compared with the previous year's survey, about 5 percent more farmers—75 percent—had total farm sales of less than $20,000 annually. The 25 percent of farmers with total annual farm sales of $20,000 and over accounted for 80 percent of direct sales About 65 percent of the direct marketing farmers were part-time with additional non-farm sources of income.
- Almost one-half of the farmers produced livestock, and over one-third produced field crops. Poultry and vegetables were produced by one-fourth of the respondents. Fresh fruits, dairy products, floral and nursery products, honey, syrup, and forest products were produced by less than one-fifth of the farmers.
- Nearly 64 percent of direct marketing farming operations, in the nine States, were located near cities with a population less than 10,000. The population of the nearest city for another 22 percent of these operations was between 10,000 and 50,000.
- On future plans, 38 percent of the farmers said they would continue direct marketing at the same level, 28 percent planned to increase direct marketings, about 15 percent planned to decrease operations, and 20 percent were undecided. ■

To receive a more detailed copy of this report write:

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Foreign Ownership in Food Retailing

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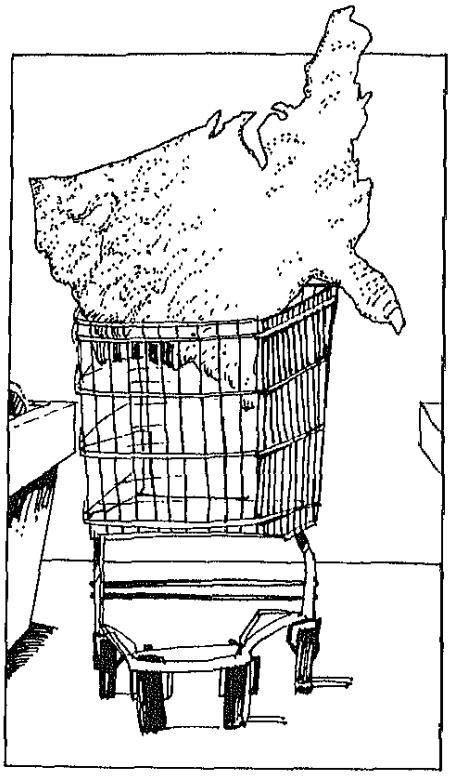
The slogan "Take Stock in America," intended to publicize U S. Savings Bonds, has become the goal for the increasing number of foreign firms investing in the U.S. food system The U.S. Government has traditionally maintained a neutral policy toward direct foreign investment. This neutrality was recently reaffirmed by the Department of Commerce in congressional hearings. Foreign investment in the U.S. has doubled in the last 5 years, but the amount of foreign investment is still only about one-fourth as great as U.S. investment in foreign firms.

Foreign investment in U S. agricultural land has received the most publicity and generated the most concern up to present time. However, data collected under the Agricultural Foreign Investment Disclosure Act of 1978 reveal that as of February 1, 1980, foreign entities and individuals owned slightly less than 0.5 percent of all U.S. agricultural land, almost half of which is classified as forest lands. A greater degree of foreign investment has occurred in food manufacturing and retailing

Growing Foreign Investment

In 1974, foreign firms controlled about 4 percent of sales and over 6 percent of the total assets of U.S. food manufacturing. By the end of 1979 foreign investment in food manufacturing had reached $2.56 billion—about 5 percent of sales and approximately 8 percent of the total assets of U.S. food manufacturing

In the last few years, a growing number of European firms have added U.S. food retailers to their shopping lists. Canada's Lobaw Companys' 1956 acquisition of National Tea represented the only significant foreign investment in U.S. food retailing prior to 1970. In 1972, Lobaw also acquired Peter J. Schmidt, a small chain of grocery stores based in Buffalo, New York. There were six foreign-owned food retailers in 1975. As of April 1980, foreign firms wholly or partially owned 23 U.S grocery firms.



These 23 firms accounted for nearly 11 percent of total grocery store sales. Over half of these firms were acquired since 1978.

Parent Firms

At least 15 foreign firms own food stores in the United States. These parent firms are located in five European countries plus Canada. West Germany is the leading source of foreign investment, with six parent firms. These West German companies control eight U.S. affiliates and account for 60 percent of total foreign investment in the grocery store industry. The United Kingdom is the next largest source with three parent firms that account for 23 percent of foreign investment in the United States. Ten percent of direct foreign investment originates from Canada, and the remaining 9 percent is distributed among Belguim, Netherlands, and France. If Steinberg, a Montreal based retailer, completes its announced intention to acquire Smitty's Super Value (a local chain of 19 stores based in Phoenix, Ariz.), the Canadian share of foreign investment will increase slightly.

Most acquiring firms are large retailers in their home countries. The two exceptions

Foreign Investments in U.S. Food Retailing, April, 1980

Foreign Investor and country	Name	US Company Date of major investment or acquisition	Extent of foreign ownership[1]	1979 sales	Share of t U.S. Groc store sale
			Percent	Mil dollars	Percent
Tengelman Group West Germany	The Great Atlantic and Pacific Tea Co.	1978	45	6,684[2]	3.8
Cavenham, Ltd. UK	Grand Union Co. Colonial Stores, Inc. J Weingarten, Inc	1973 1978 1980	100 100 97	3,874[3]	2.2
Theo Albrecht Group/THS West Germany	Albertson's, Inc. Pronto Markets, Inc.	1979 1979	9 100	2,817[4]	1.6
Lobaw Companies, Ltd. (George Weston, Ltd.) Canada	National Tea, Co. Peter J. Schmitt Co., Inc. Applebaum's Food Markets	1956 1965 1979	84 100 100	1,763[5]	1.0
Delhazle Feres, & Cie, "Le Lion" Belgium	Foodtown Stores, Inc. Alterman Food, Inc.	1974 1980	52 100	827[6]	.5
Rewe Handelgeseilschaft, OHG West Germany	Furr's Inc.	1979	100	550[7]	.3
Wertkaug Mann Co. (Hugo Mann Group) West Germany	Fed-Mart Corp	1975	68	548[8]	.3
Ahold, NV Netherlands	Bl Lo, Inc.	1977	100	540[7]	.3
British-American Tobecco, Co., Ltd (BATUS) UK	Kohl's Food Stores, Inc.	1972	100	450[9]	.3
Franz Haniel & Cie, Gmbh West Germany	Scrivnar, Inc. Pacific Gamble Robinson Co.	1977 1978	100 9	548[10]	.3
Promodes, SA France	The Red Food Stores, Inc.	1979	100	206[11]	.1
Aldi, Gmbh West Germany	Benner Tea Co.	1979	100	150[12]	.08
Silverwood Industries, ltd. Canada	Hop-In Food Stores, Inc. Fairview Ltd.	1980 1980	33 100	60[13]	.03
Societe Docks de France France	Lil' Champs Food Stores, Inc.	1977	35	23[14]	.01
Albert Gubey/Three Guys UK	3 Guys, Inc.	1980	100	Not available[15]	
Total Inveetment				18,990	10.7

[1]Direct or indirect ownership of voting securities—April, 1980. [2]Fiscal yeal ended Feb. 23, 1980 [3]Includes J Weingarten sales reported to June 30, 1979 $568,118,000 [4]Includes estimated 1979 sales of Pronto Markets, Inc [5]Excludes Schmitt's wholesele and Park Edge sales. [6]Excludes Alterman's wholesale operations [7]Estimated sales [8]Food store sales only as of September 2, 1979. [9]Food store sales only, eetimeted total company sales $600,000,000. [10]Does not include wholesale sales [11]June 3, 1978 June 2 [12]Industry ostimate [13]Hop-In sales-Jan. 1, 1979 Dec 31, 1979 = $48,633,462 [14]Ex gasoline and pinball machines commission. [15]Opened January, 1980
Sources: U.S. Department of Commerce; Supermarket News, Progressive Grocer, Store Age, Food Marketing Institute, Annual Reports.

are British American Tobacco Company, and Franz Haniel, West Germany, a fuel and shipping firm. To date, foreign investment into food retailing has been achieved through horizontal market extension mergers by other retailing firms, rather than through conglomerate mergers.

U.S. Subsidiaries

The 23 U.S. food retailers acquired by foreign firms vary widely in size from over $6 billion in sales to less than $20 million. Four companies (18 percent) reported 1979 sales of over $1 billion. Three (A&P, Grand Union, and Albertson's) rank in the top 10 U.S. grocery store firms, while the fourth (National Tea) ranks among the top 20. Another five companies (23 percent) are large regional chains with sales between $500 million and $1 billion. But the foreign investors' favored affiliation is with the mid-size local chain with annual sales under $500 million. Thirteen chains (59 percent) fall into this category. In addition to the more "affordable" size of these mid-sized regional and local chains, they are generally stocked from a single warehouse that contributes to the cohesiveness and efficiency of the operation, making the chains attractive investments for foreign firms.

Fourteen of the U.S. affiliates are wholly owned by their foreign parent company. An additional 4 firms have over 50 percent foreign ownership. Foreign investors owned less than 10 percent of the common stock of Albertson's and Pacific Gamble Robinson.

With a few major exceptions such as A&P and National Tea, the U.S. affiliates of foreign firms tend to concentrate in the southeastern and Southwestern regions. Over two-thirds of the acquired firms are located in these Sunbelt regions which are experiencing above average population growth. Thus, for many cities in these regions the share of sales controlled by foreign-owned retailers is considerably higher than the national average.

American food retailers have not been particularly aggressive in developing sales outside the United States. Safeway is a notable exception—277 of Safeway's 2,425 supermarkets in operation at the end of 1979 were located in Canada, 114 in Europe, and 63 in Australia. Jewel Food Stores also has substantial food retailing operations in Mexico.

Performance of U.S. Subsidiaries

Because most foreign investments have occurred since 1978, it is still too early to assess changes in performance of U.S. affiliates under their new ownership. In general, foreign owners have retained the existing management and operating procedures of their new purchases. A dramatic exception is Aldi Benner, of West Germany, who introduced the limited assortment "box stores" in this country, patterned after their successful European operations. Under Tengelmann's (West Germany) ownership, A&P has also adopted the "no frills" box store format in many markets. Financial performance of foreign firms' U.S. subsidiaries has generally reflected the firm's preacquisition record. Grand Union and Food Town stores have increased their profitability following foreign ownership, but the financial problems of other large retailers such as A&P and Fed-Mart have continued under foreign control.

Share of Foreign Investment in U.S. Food Retailing, 1980

Country	Parent firms	U.S. firms acquirad	Share of foreign investment
	Number	Number	Percent
West Germany	6	8	60
United Kingdom	3	5	23
Canada	2	5	10
Belgium	1	2	4
Netherlands	1	1	3
France	2	2	1
Total	15	23	100

Foreign Investment Incentives

Many firms turn to the large U.S. food retailing market because of restrictive regulations in their home country. In West Germany, laws restrict new supermarket openings and place controls on their operations. Large retail firms are required to obtain approval from neighborhood residents and merchants before constructing large supermarkets. Similar laws affect retailers in France and other European countries.

Foreign investors have been attracted to successful mid-size regional and local chains. A favorable exchange rate and undervalued common stock, priced at or below book value, makes food retail firms attractive ventures for foreign investors. At the same time, some U.S. retailers have been receptive to foreign investment as a source of funds to finance growth in a tight money environment. Food Town Stores, for example, has increased sales more than five-fold since Delhazie, of Belgium, acquired 52 percent ownership in 1974.

Real estate and tax considerations may also encourage inward foreign investment. Many retailers own substantial real estate holdings. Foreign investors are not required to pay U.S. capital gains tax on the sale of real estate in this country.

If interest rates remain high, U.S. retailers will continue to look at foreign investors as possible sources of funds to finance expansion and store modernization. At the same time, many foreign retailers are finding it difficult to grow in their home countries and are looking for larger markets. These conditions suggest a continuation of foreign investment in U.S. food retailing, but it is unlikely that the rapid investment pace of the past two years will be sustained. ■

References

DeBrael, J. Peter, "Foreign Ownership of U.S. Agricultural Land," USDA, AIB-440, November 1980, p. 1.

Connor, John M., "Foreign Food Firms Working Paper of North Central Regional Project, NC-117, Madison, Wisconsin, Feb. 1980, p. 5.

Advertising: A Measure of Product Quality?

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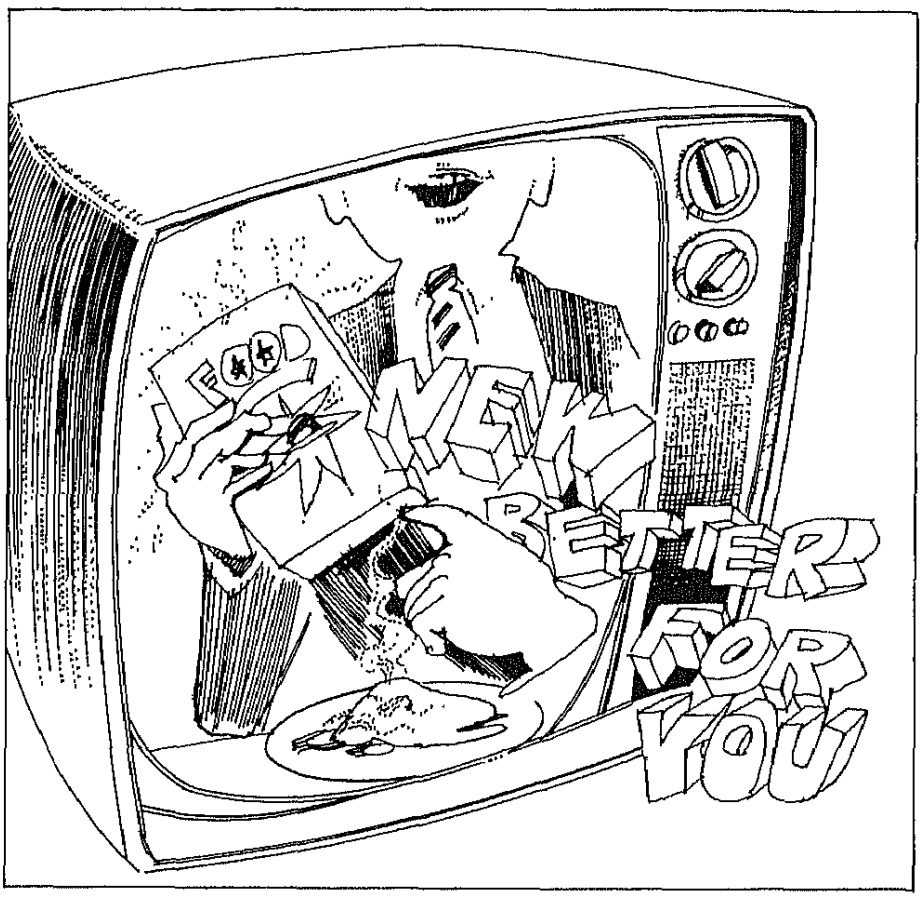
Consumers rely on several methods to acquire information about product quality. The most straightforward, of course, is to "experience" the product—eat it or use it. Low-priced, frequently purchased products require the experience approach, but some goods have "search" characteristics. Information on search goods can be obtained by inspection, asking one's friends, or even reading technical reports.

Some consumers rely on price as an indicator of quality, though there seems to be little agreement on the exact price/quality relationship. Some consumers, when faced with new product choices, consistently choose high-priced brands, others feel they get the best value by selecting a medium-priced alternative, while many choose the unbranded option.

Philip Nelson, an economist at the State University of New York at Binghamton has suggested advertising intensity as yet another index of product quality. Based largely on the experience and search characteristics and rational behavior by consumers, his theory is noteworthy in light of the widespread controversy over the information content of advertising.



Advertising and Information

Television advertising has often been criticized on the grounds that it lacks concrete product information. Furthermore, some economists contend that heavy advertising provides an advantage for leading firms over their smaller competitors and potential rivals, and that this advantage is anticompetitive, resulting in higher product prices. If these criticisms are true, then the resources used in advertising serve only to transfer income from consumer to producers, without adding to the total volume of goods produced, and can be considered wasteful.

But, Nelson finds fault with the criticisms. If advertising provides no information, then why do consumers respond to it? If there was truly no information provided, consumers would most likely learn to ignore or to be quite skeptical of the many commercials they see each day. If this is the case, then how does advertising serve to protect leading firms? Finally, only a relatively small proportion of products are heavily advertised. Apparently, there are many products for which advertising does not elicit strong consumer response.

Are there certain characteristics of a product which affect the responsiveness of consumers to advertising? Several researchers have explored these questions in recent years by concentrating on the process by which consumers may gain information about a product.

Nelson observes that products usually have a variety of characteristics: price, function, color, size, and perhaps some operating factors known before purchase.

Consumers can gain information about a product by tasting a new food product or washing with a new soap product. Characteristics that can be ascertained through use are called "experience" characteristics.

Search product advertising is relatively noncontroversial, since it provides "hard" information (such as price, location, brand, objective quality ratings, etc.) to consumers probably more cheaply than they can get it elsewhere. It can also be checked for accuracy before buying. It is advertising of experience goods that is often criticized for its lack of informational value and its effect on market performance.

There is a greater incentive to provide misleading information concerning experience products. Claims that a brand of toothpaste whitens teeth better, or that a brand of margarine tastes more like butter cannot be checked prior to purchase.

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(for example, the efficacy of a drug). Nor is it concerned with the issue of whether advertising alters consumer perceptions. The validity of Nelson's hypothesis is difficult to test.

A Test of Nelson's Hypothesis

Recently, data sufficient for some preliminary tests of the hypothesis have been compiled at USDA. Advertised brands in 11 different food product classes were selected for the test: salad dressings, milk flavorings, pancake mixes, spaghetti sauce, margarine, bologna, instant coffee, hot dogs, frozen pizza, tuna, regular coffee, and spaghetti—all experience nondurable goods. Quality ratings of each brand were obtained from *Consumer Reports*. Brands within each product class were then ranked according to their quality ratings. The brands were matched with estimates of their advertising expenditures. Sales and brands within each class were ranked according to their advertising expenditure per unit of sales. Advertising expenditures were obtained from *Leading National Advertisers*, brand sales estimates were obtained from the A.C. Nielson Co. Early Intelligence System (NEIS) Directory. This was made available to USDA under a strict limited rights agreement whereby the confidentiality of the data must be respected through restriction to USDA employees.

The research question was whether there was any tendency for brands ranked high in quality to also be ranked high in advertising per unit of sales. A suitable measure of this tendency is the rank correlation coefficient. It is a measure of the degree to which two variables (in this case, quality and advertising per unit sales rankings) are associated. The rank correlation coefficient takes values ranging from +1 (direct association—brand advertising rankings identically match brand quality rankings) through 0 (no association) to −1 (highest quality brands are the least advertised brands).

The estimated rank correlation coefficients were positive for 10 of the 11 product classes. The results indicate a tendency for advertising intensity and quality to be positively associated in those samples. The coefficient was negative only for spaghetti, indicating a tendency toward an inverse association.

The samples in this preliminary study are small, ranging from 5 to 12 brands in each product class; for that reason an inference that our estimates would hold for all brands in a product class is not justified. In addition, we are not testing Nelson's strong contention that heavily advertised products provide more quality per dollar, but a weaker contention (held by most adherents to Nelson's position) that heavily advertised products are of higher quality (without consideration of price).

Given the small sample size, we cannot say that the hypothesis is conclusively supported, nor can we make precise assertions about the strength of associations between advertising-sales ratios and product quality. However, Nelson's hypothesis cannot be rejected on the basis of our data—he may be right and his theory deserves to be taken seriously. A key factor may be the extent to which consumers actually learn through experience. The potential for excessive or misleading advertising may be quite low if a product has characteristics which can be rapidly assessed through experience, since a consumer who is induced by advertising to try an inferior product will not repeat the purchase. For products where this is not the case (new, complex, or infrequently purchased items) market forces may be less likely to discipline misleading or inefficient advertising expenditures. ■

References

Comanor, William and Thomas Wilson. *Advertising and Market Power*, Cambridge: Harvard University Prs.

Nelson, Philip. "Information and Consumer Behavior" *Journal of Political Economy*, April 1970, pp. 311-329.

———— "Advertising as Information" *Journal of Political Economy*, August 1974, pp. 729-755.

MacDonald, James, David Scheffman, and Ira Tayloy Whitten. "Advertising and Quality in Food Products: Some New Evidence on the Nelson Hypothesis." Paper presented at the NC-117 Symposium on Advertising and the Food System, Airlie House, Virginia, November 6, 1980.

Nutrient Content of the National Food Supply

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Over the past year, several small changes have occurred in the nutrient content of the Nation's food supply. Compared with a year earlier, 1980 levels are 1 to 4 percent higher for food energy (calories) and five nutrients—vitamin B_{12}, vitamin A, ascorbic acid, fat, and thiamin; and 1 percent lower for two minerals—calcium and magnesium. Levels for the other seven nutrients remain unchanged.

Vitamin B_{12} shows the largest increase—4 percent. Near-record use of edible offals accounts for almost all of this increase. Offals, which include liver and some other organ meats, are also excellent sources of vitamin A, consumption of which increased 2 percent. Greater consumption of some fruits and vegetables contributed to the rise in total vitamin A; but decreased consumption of sweet potatoes, another excellent source of vitamin A, offset some of the increase in this vitamin.

Ascorbic acid in the food supply is 2 percent higher due to a record-high consumption of frozen orange juice and increased use of fresh oranges. Citrus products are now the leading source of ascorbic acid in the food supply, providing almost 30 percent of the total.

Small (1 percent) increases are indicated for food energy, for fat, and for thiamin—all currently at peak levels—3,520 calories, 168 g, and 2.2 mg per capita per day, respectively. Increases in food energy and fat come from use of 7 percent more pork and slightly higher use of shortening and salad and cooking oils. More calories were also provided by increased use of fruits, grain, and sugar and sweeteners. However, fewer calories came from fresh and frozen potatoes due to their slightly decreased per capita consumption. Pork, a good source of thiamin, was the major contributor to the higher level of this vitamin.

The 1-percent decline in calcium is due to shifts in the use of dairy products, the major source of this mineral. Decreased use of fluid whole milk and nonfat dry milk accounts for this decline despite increased use of fluid lowfat milks. The lower magnesium level is also due to shifts in the use of dairy products, the leading source of magnesium in the food supply. In addition, decreased use of potatoes, chiefly fresh and frozen, and coffee contributed to the decline in magnesium.

For the seven nutrients which remained at 1979 levels, gains from increased use of some foods were offset by decreased use of others. For example, the protein level was increased from the rise in the use of pork and, to a lesser degree, poultry; but was decreased by declines in the use of beef, certain dairy products, eggs, and potatoes.

Greater use of pork and offals contributed to small gains for riboflavin, niacin, vitamin B_6, and iron which were offset by decreased use of other foods, primarily potatoes. More phosphorous was contributed by increases in consumption of pork, offals, lowfat milks, fruits, vegetables (other than potatoes), and grain products. Less phosphorous was contributed by nonfat dry milk, fluid whole milk, and beef which decreased in consumption. The increased amount of carbohydrate provided by use of more fruits, vegetables, and grain products was balanced by decreased use of potatoes.

Since 1967

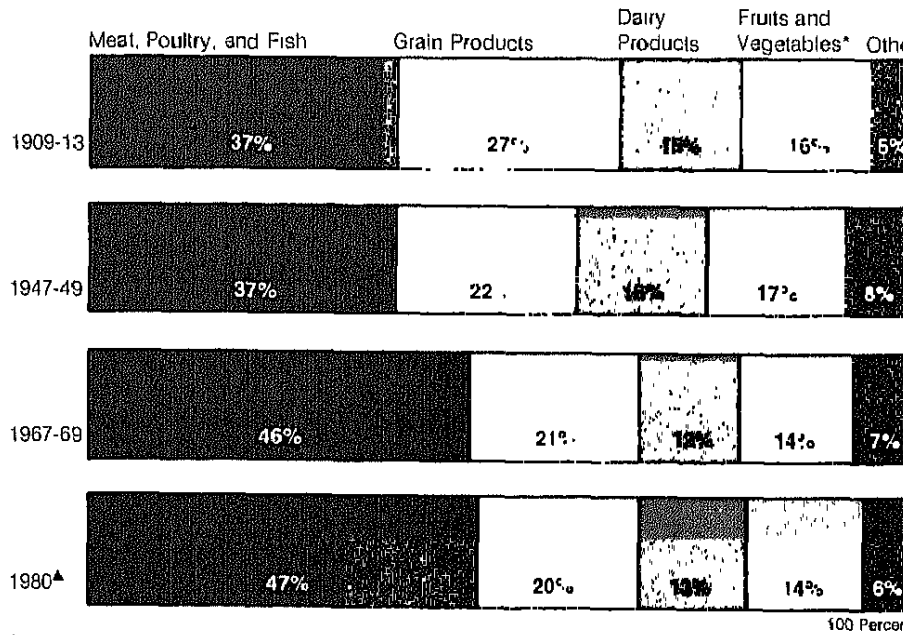
Current levels for food energy and 12 nutrients are 1-17 percent higher than in 1967, the level for calcium is 6 percent lower, and the level for phosphorous is unchanged.

The ascorbic acid level shows the largest increase, 17 percent. Citrus products, particularly chilled and frozen orange juice, with smaller contributions of ascorbic acid from vegetables and fortification of fruit juices and drinks, account for this large increase.

Higher levels for thiamin, niacin, and riboflavin (16, 15 and 4 percent, respectively), are largely due to the higher standards of enrichment for white flour, set in 1975. A large part of the increase in riboflavin from enrichment was offset by the downward trend in consumption of dairy products, primarily fluid whole milk. Contributions of thiamin, riboflavin, and niacin also came from increased consumption of pork and poultry, which rose 17 and 42 percent, respectively during this period.

Current levels are higher than in 1967 for

U.S. Food Supply: Contributions of Zinc by Major Food Groups



▲Preliminary
*Includes Potatoes and Drybeans Peas, Nuts and Soy Products

iron and vitamin B_6 (7 percent), protein (4 percent), and vitamin B_{12} and magnesium (1 percent). Grain products, consumption of which increased 10 pounds per capita since 1967, were the chief sources of the increase in iron and contributed to higher levels for vitamin B_6, protein, vitamin B_{12}, and magnesium as well. Vitamin B_{12} from grain products came solely from enrichment and fortification because this vitamin occurs naturally only in foods of animal origin.

Increased use of pork and poultry also provided iron, but use of these foods primarily accounted for the higher levels of protein, magnesium, vitamin B_6, and vitamin B_{12}. The vitamin A level is 5 percent higher than in 1967 due primarily to the expanded use of some canned tomato products, although offals and poultry also contributed substantially.

The 10-percent higher level for fat resulted chiefly from increased use of salad and cooking oils, with smaller contributions provided by increased pork consumption. The 8-percent higher carbohydrate level is attributed to the sharp increase in use of high-fructose corn sirup (HFCS). Use was first reported in 1970 and now is about 25 pounds per capita per year exceeding that of regular (glucose) corn sirup. Substantially higher levels for two energy-yielding nutrients—fat and carbohydrate—raised the level for food energy 9 percent.

A decline is indicated for only one nutrient—calcium, which is 6 percent lower than in 1967. Consumption of dairy products, in terms of the calcium equivalent of a quart of whole milk, declined from 231 to 204 quarts per capita per year since 1967. Decreased use of fluid whole milk and nonfat dry milk (40 to 60 percent, respectively) was responsible for this decline, despite the more than twofold increase in use of fluid lowfat milk and a two-thirds increase in use of cheese. The decline in use of whole and nonfat dry milk also provided less phosphorus, which was offset by increased contributions from pork, poultry, and some grain products.

Zinc

Estimates of the zinc content of the national food supply are presented for the first time. Since 1909-13, the level of this mineral has fluctuated between 11 and 13 mg per capita per day. The current level of zinc is 12.5 mg per capita per day, approximately the same as at the beginning of the century.

Zinc is a mineral known to be essential for cell growth and repair. The National

Contribution of Major Food Groups to Nutrient Supplies[1]

Food group	Food energy	Protein	Fat	Carbohydrate	Calcium	Phosphorus	Iron	Magnesium	Vitamin A value	Thiamin	Riboflavin	Niacin	Vitamin B_6	Vitamin B_{12}	Ascorbic acid
1967	Percent														
Meat (including pork fat cuts), poultry, and fish	20.6	40.5	35.9	0.1	3.7	25.9	31 1	12.6	22.8	28.6	22.4	47 1	39.4	68.4	2.1
Eggs	2.3	5.9	3.4	.1	2.6	6.0	8 3	1.4	6.7	2.6	5.8	.2	2.6	9 8	0
Dairy products, excluding butter	11.8	22.6	13.3	7 3	76.0	36.7	2.3	22.5	12.3	9 7	42.8	1.7	11 8	21.2	4.8
Fats and oils, including butter	16.9	.1	40.3	(2)	.4	.2	0	.4	8.3	0	0	0	.1	0	0
Citrus fruits	.8	.4	.1	1.7	.9	.7	.8	2.0	1.3	2.5	.5	.8	1.4	0	25.8
Other fruits	2.3	.6	.2	5.0	1.2	1 1	3.8	3.9	6.1	1.9	1.6	1.8	6.6	0	10.6
Potatoes and sweetpotatoes	2.8	2.3	.1	5.3	1.0	3.5	4.2	7.1	5 8	5.0	1.6	8.5	10.7	0	16.1
Dark green and deep yellow vegetables	.2	.4	(2)	.5	1 4	.6	1.7	2.0	20.0	.8	1.0	6	1.9	0	8.5
Other vegetables, including tomatoes	2.5	3.3	.4	4.6	4.7	4.8	9.7	10.3	15.1	6.7	4.5	5.9	10.6	0	30.7
Dry beans and peas, nuts, soya flour and grits	3.0	5.0	3.6	2 2	2.6	5.7	6.8	11.0	(2)	5 4	1.8	6.5	4.9	0	(2)
Grain products	20.1	18.4	1.4	36.5	3.4	12.6	29.8	18.2	.4	38.7	17.3	23.6	9.8	.9	0
Sugar and other sweeteners	16.1	(2)	0	36.0	1.1	.2	.7	.2	0	(2)	.1	(2)	.1	0	(2)
Miscelleneous[3]	.8	.4	1.3	.7	1.0	1.9	2.9	8.4	1.2	.1	.8	5.3	1	0	1.5

[1]Percentages for food groups are based on total nutrient data in table entitled "Nutrients Available for Consumption."

[2]Less than .05 percent.

Academy of Sciences (1980) has recommended a daily allowance (RDA) of 15 mg for children over the age of 10 and adults. However, they have stated that there is evidence suggesting marginal zinc nutrition in segments of the U.S. population. Although not directly comparable to the RDA, the level of zinc in the food supply may provide additional evidence for this statement.

Over the years, the sources of zinc have changed markedly due to changes in the consumption of foods from three major food groups. The meat, poultry, fish group has remained the leading source of zinc in the food supply. It currently provides almost half of all the zinc compared with less than 38 percent before 1947-49. This increase reflects primarily the rise in beef consumption.

Since 1909-13, dairy products have moved

Zinc Content of the U.S. Food Supply, Per Capita Per Day Civilian Consumption

Food Group	1909-13	1935-39	1957-59	1967-69	1975	1980[1]
			milligrams			
Meat, poultry, and fish	4.7	3.8	4.8	5.7	5.8	5.9
Dairy products[2]	1.9	2.2	2.7	2.6	2.6	2.5
Grain products	3.3	2.3	1.5	1.5	1.4	1.6
Fruits and vegetables[3]	2.1	2.1	1.8	1.7	1.8	1.8
Other[4]	.6	.7	.9	.8	.8	.8
Total[5]	12.6	11.0	11.6	12.3	12.4	12.5

[1]Preliminary
[2]Excludes butter
[3]Includes dry beans and peas, nuts and soy products, and potatoes
[4]Includes eggs, fats and oils, sugars, coffee, and cocoa
[5]Components may not add to total due to rounding

Contribution of Major Food Groups to Nutrient Supplies[1] —Continued

Food group 1980 Preliminary	Food energy	Protein	Fat	Carbohydrate	Calcium	Phosphorus	Iron	Magnesium	Vitamin A value	Thiamin	Riboflavin	Niacin	Vitamin B_6	Vitamin B_{12}	Ascorbic acid
								Percent							
Meat (including pork fat cuts), poultry, and fish	21.0	42.9	36.1	.1	4.2	28.6	31.1	14.0	23.9	27.9	23.5	45.4	40.7	71.9	2.1
Eggs	1.8	4.9	2.7	.1	2.4	5.2	5.1	1.2	5.5	1.9	4.9	.1	2.1	8.2	0
Dairy products, excluding butter	9.9	20.2	11.2	5.7	71.6	32.6	2.4	19.8	12.2	7.2	38.3	1.2	10.7	18.4	3.2
Fats and oils, including butter	18.2	.1	43.0	(2)	.4	.2	0	.4	7.8	0	0	0	(2)	0	0
Citrus fruits	1.0	.6	.1	2.1	1.1	.9	.9	2.8	1.7	2.9	.6	.9	1.5	0	29.3
Other fruits	2.3	.7	.3	5.0	1.4	1.3	3.9	4.5	5.9	1.8	1.7	1.7	7.1	0	11.8
Potatoes and sweet-potatoes	2.7	2.3	.1	5.1	1.0	3.8	4.4	7.1	5.0	4.5	1.4	5.9	9.5	0	13.6
Dark green and deep yellow vegetables	.2	.4	(2)	.4	1.5	.8	1.6	2.0	18.5	.7	1.0	.5	1.9	0	9.0
Other vegetables, including tomatoes	2.5	3.3	.4	4.7	5.2	5.1	9.9	10.7	18.7	6.2	4.7	5.7	10.7	0	27.8
Dry beans and peas, nuts, soya flour and grits	3.0	5.5	3.7	2.1	3.1	6.4	6.8	12.3	(2)	6.0	1.9	6.8	5.0	0	(2)
Grain products	19.9	18.8	1.3	38.2	3.8	13.4	31.0	19.1	.4	41.7	23.3	28.4	10.6	1.6	0
Sugar and other sweeteners	17.0	(2)	0	38.1	3.3	.7	.6	.2	0	(2)	(2)	(2)	(2)	0	(2)
Miscellaneous[3]	.6	.3	1.0	.5	.8	1.5	2.1	6.4	2.2	.1	.6	3.3	.1	0	3.3

[3]Coffee, chocolate liquor equivalent of cocoa beans, and fortification of products not assigned to a food group.

from third to second place as a source of zinc in the food supply. They currently provide 20 percent of the zinc, compared with only 15 percent at the beginning of the century. Most of this increase is due to the fourfold increase in cheese consumption.

The third leading source of zinc in the current food supply is the grain products group, providing 13 percent of the total. Grain products accounted for approximately twice as much zinc at the beginning of the century when they were the second leading source of zinc. Decreased consumption of wheat and corn products has been a primary cause of the decline ■

Nutriente Available for Consumption, Per Capita Per Day[1]

Nutrient (unit)	1967	1980[2]
Food energy (cal)	3,240	3,520
Protein (gm)	99	103
Fat (gm)	152	168
Carbohydrate (gm)	374	406
Calcium (mg)	947	891
Phosphorus (mg)	1,529	1,528
Iron (mg)	16.4	17.6
Magnesium (mg)	341	343
Vitamin A value (IU)	7,900	8,400
Thiamin (mg)	1.9	2.2
Riboflavin (mg)	2.3	2.4
Niacin (mg)	23.2	26.8
Vitamin B_6 (mg)	1.9	2.0
Vitamin B_{12} (mcg)	9.4	9.5
Ascorbic acid (mg)	105	123

[1]Quantities of nutrients computed by Science and Education Administration, Human Nutrition, Consumer Nutrition Center, on the basis of estimates of per capita food consumption (retail weight), including estimates of produce of home gardens, prepared by the Economics and Statistics Service. No deduction made in nutrient estimates for loss or waste of food in the home, use for pet food, or for destruction or loss of nutrients during the preparation of food. Civilian consumption. Data include iron, thiamin, riboflavin, and niacin added to flour and cereal products, other nutrients added primarily as follows: Vitamin A value to margarine, milk of all types, flavored milk extenders, vitamin B_6 to cereals, meal replacements, infant formulas, vitamin B_{12} to cereals, ascorbic acid to fruit juices and drinks, flavored beverages and dessert powders, flavored milk extenders, and cereals.

[2]Preliminary.

Changing Home Food Production and Preservation Patterns

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American households have responded to rising food costs with garden shovels and freezer bags.

Home food production and home freezing increased from 1964 to 1976, while participation in home canning shifted among types of households. In addition to high food costs, changes in the labor force and other economic factors may have been responsible for this trend.

The Nationwide Food Consumption Survey (NFCS) of 3,500 households (those with at least one member having 10 or more meals prepared at home during the week preceding the interview) was conducted by USDA in the spring of 1977. Trends in home food production and preservation were identified by comparing household practices with a similar survey in 1965 (6,200 households). Respondents were asked if the household had engaged in home food production and preservation practices during the previous year. Although these data were collected for all four seasons in the latest NFCS, the 1965 survey collected data only during the spring.

Home Produced Food

Home produced food was defined as that raised for home use or obtained by hunting and gathering from the wild. One out of two surveyed households produced food at home in 1976, compared with one out of three households in 1964. Most of the increase in home food production appears to have been associated with vegetable gardening. Forty-three percent of the households produced tomatoes in 1976, compared with 27 percent in 1964, while the percentage of households producing animal products such as eggs, milk, or meat for home use decreased from 10 to 7 percent.

Between 1964 and 1976, home food production by households in various income categories shifted considerably. Though income information obtained for 1976 is not directly comparable with that of 1965, according to the 1976 survey, higher income households were more likely to produce food for home use.

For the purpose of comparing home food production and preservation practices at different income levels, the total number of households reporting income in each of the two years were divided into five groups, according to similar proportions of the distribution of income (see tables). Much of the increase in the numbers of home producers occurred among the middle- and upper-income groups. In the lowest income levels, there was actually a reduction in the percent of home food produced, from 43 to 35 percent. Higher food costs may have motivated the higher income households to plant gardens, and their larger incomes would make garden costs (land, tools, etc.) more affordable.

The percentage of households producing foods for home use increased in each region of the United States between 1964 and 1976. In the South, an increase of 7 percentage points was observed compared with about a 16 percentage point increase in the other regions.

As anticipated, the incidence of home food production decreased with the degree of urbanization. In 1976, a household in a nonmetropolitan area was twice as likely to produce foods for home use as households in central cities. About 50 percent of households in suburban sections of metropolitan areas reported having produced food for home use.

One-fourth of U.S. households surveyed reported home consumption of fish from noncommercial sources. Below average ratios, about 15 percent, were found for households in the lowest income levels, in the Northeast, and in central cities. The percentage of households catching fish for use at home ranged from 24 to 32 percent in other income, regional, and urbanization categories.

Home Preserved Food

The increasing number of households producing food for home use between 1964 and 1976 was accompanied by a major increase in the proportion of households reporting home freezing of foods. The percentage of households engaged in freezing activities more than doubled, increasing from 24 to 55 percent. The percentage of

households canning foods remained the same at about 35 percent. Availability of freezers in the home (a combination refrigerator-freezer is considered a separate freezer if the freezer section is completely sealed off from the refrigerator space), ease in preparing food for freezing, and difficulty in obtaining canning supplies may have accounted for the surge in popularity of home freezing over canning.

Home freezing has shifted among the income groups since 1964, when more middle-income households were freezing food than those at the extremes of the income range. In 1976, however, the proportion of households reporting freezing activities increased with income. The shift to higher income households may be accounted for by rising food cost as well as a wider variety of refrigerator-freezers. Freezer ownership has risen 57 percent since 1964. The cost of a freezer may deter ho freezing for low-income households.

Regional differences in the percentage households freezing foods for home use decreased. In 1964, use of freezing for foods ranged from 13 percent in the No east to 30 percent in the North Cen region. The new survey displayed a ra from 52 percent in the West to 59 percen the North Central region.

Households Producing Food for Home Use

	Any food		Any		Vegetables, fruit: Potatoes, sweet potatoes		Tomatoes		Other vegetables		Melons		Other fruit		Animal products		Caught fish[1]
	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1976
	Percent																
Income[2]																	
All groups[3]	34	47	32	46	11	15	27	43	28	39	6	8	14	18	10	7	25
Group one	43	35	40	34	20	13	35	30	36	28	8	5	18	13	19	6	15
Group two	36	41	33	40	14	14	28	37	29	36	6	8	14	12	14	7	24
Group three	32	50	31	49	9	17	27	46	25	40	5	9	15	15	8	7	26
Group four	29	54	28	53	6	16	22	49	20	44	4	10	13	19	4	6	29
Group five	31	56	29	55	4	13	23	51	18	44	3	11	13	22	6	8	31
Region																	
Northeast	21	39	20	39	4	7	18	37	15	30	2	4	8	9	3	2	15
North Central	40	55	39	54	14	19	35	53	33	47	5	12	18	17	11	8	28
South	40	47	38	47	17	22	32	42	32	41	9	10	15	14	17	10	30
West	29	45	27	44	4	9	15	38	15	35	4	7	18	25	6	6	24
Urbanization[4]																	
Central city		30		30		4		26		22		3		8		1	16
Suburban		50		50		11		45		40		10		18		5	25
Nonmetropolitan		60		58		29		55		52		12		20		14	32

[1]Information concerning households catching fish for home use was only obtained in the 1977 78 NFCS

[2]Income groups

Group	1964 Percent of sample	1964 Income after tax	1976 Percent of sample	1976 Income before tax
One	22	Under $3,000	22	Under $6,000
Two	20	$3,000 4,999	18	$6,000 9,999
Three	25	$5,000 6,999	27	$10,000 16,800
Four	21	$7,000 9,999	22	$16,801 26,000
Five	12	Over $10,000	12	Over $26,001

[3]Includes those households not reporting income information

[4]Urbanizations in 1976 are not comparable to those in 1964

Source USDA Nationwide Food Consumption Survey 1977-78, 48 conterminous States, spring 1977 (preliminary)

Although there was little change in the proportion of households canning foods for home use between 1964 and 1976, there were internal shifts in the types of households engaged in canning activities. As with home food production, home canning of food shifted from predominantly lower income households to those households in higher income groups in 1976. At the lowest income level for the earlier survey, 44 percent of the households reported home canning. At the upper end of the income scale, 25 percent of the households were canning foods. In 1976, the frequency of home canning was greater among middle- and upper-income households than among the lowest income group. The percentage of the lowest income households reporting food canning dropped by one-third during the 12-year period.

Regional differences measured in percentage points showed only limited differences between the two years. The Northeast continued to lag behind the other regions in 1976, having only 25 percent of households reporting canning operations compared with about 40 percent in other regions.

Characteristics of the Female Head

Age, education, and employment of the female head of the household (defined as the adult female in the household regardless of marital status) appears to influence the household's participation in home food preservation. Households with a female head under 25 or over 65 years of age were less likely to freeze foods for home use than those with female heads age 25 to 65 in 1964 and 1976. In 1964, the percentage of households canning food for home use increased with the age of the female head through 45 years and tended to level off thereafter to about 40 percent. In the recent survey, associations with age appear to be less well defined. Home canning rates among female

Households Canning and Freezing Food for Home Use

	Households canning														Households freezing							
	Any food		Any vegetables		Pickles relishes		Other		Any fruit		Jellies, jams, preserves		Other		Meat poultry, fish, game		Any		vege-tables		Fruit or berries		Meat, poultry, fish, game	
	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976
	Percent																							
Income[1]																								
All groups[2]	34	37	24	29	17	22	19	22	29	26	25	25	19	16	2	3	24	55	18	39	16	30	15	40
Group one	44	29	32	23	22	16	26	19	36	23	32	21	27	14	3	2	20	37	17	27	13	19	13	23
Group two	36	34	26	27	20	21	22	19	31	25	26	22	22	16	2	3	23	51	19	36	16	25	16	36
Group three	34	40	24	32	17	23	19	25	29	30	26	26	17	17	2	2	27	59	20	42	19	31	17	47
Group four	29	40	19	31	13	25	14	21	25	29	22	26	14	17	1	3	26	66	18	47	17	36	15	49
Group five	25	40	16	26	12	22	11	20	21	33	19	30	11	15	1	4	24	67	16	42	17	36	16	52
Region																								
Northeast	21	25	15	20	10	15	12	13	17	17	14	15	11	6	1	1	13	56	9	31	9	21	7	49
North Central	39	42	30	36	21	26	24	30	33	30	28	27	24	16	3	4	30	59	21	43	21	36	20	40
South	40	43	29	35	22	27	23	26	34	32	30	29	19	17	2	2	28	53	25	45	16	32	17	35
West	32	39	16	23	11	16	10	17	29	35	27	31	19	23	2	5	22	52	12	34	14	27	15	39

[1]Income groups

Group	1964 Percent of sample	1964 Income after tax	1976 Percent of sample	1976 Income before tax
One	22	Under $3,000	22	Under $6,000
Two	20	$3,000 4,999	18	$6,000 9,999
Three	25	$5,000 6,999	27	$10,000 16,800
Four	21	$7,000 9,999	22	$16,801 26,000
Five	12	Over $10,000	12	Over $26,001

[2]Includes those households not reporting income information

Source: USDA Nationwide Food Consumption Survey 1977-78, 48 conterminous States, spring 1977 (preliminary)

heads over 65 years, however, held at around 40 percent.

The pattern of home food preservation by educational level of the female head has shifted between the two time periods. Households where the female head has a college education increased home freezing activities from 23 percent in 1964 to 62 percent in 1976. In the lowest educational group, home freezing increased from 22 to 49 percent. More households with higher educated female heads also participated in home canning in 1976 as compared with 1964. In 1964, there was an inverse relationship between educational attainment and percent of households canning. In the group with a female head completing elementary school or less, 42 percent of the households reported food canning. In contrast, only 27 percent of the households with a female head who was a college graduate canned food for home use. By 1976, increasing proportions of households where the female head had completed high school or further were reporting home food canning at roughly 40 percent.

Employment of the female head outside of the home appears to influence her household's canning rather than freezing practices. In both surveys, employment outside the home refers to employment of 35 or more paid hours per week and does not include volunteer work. Little difference was evident in either 1964 or 1976 in the proportion of households engaged in freezing activities based on the employment status of the female head. The female head's employment status continues to deter home canning activities. Where the female head is employed, the percentage of households canning was 9 percentage points less than in households where the female head is not employed. ■

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Houeeholds With e Femele Head Cenning and Freezing Food for Home Use

	Households canning														Households freezing									
	Any food		Any Vegetables		Pickles relishes		Other		Any Fruit		Jellies, jams, preserves		Other		Meat poultry, fish, game		Any food		vege-tables		Fruit or berries		Meat, poultry, fish, game	
	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976	1964	1976
	Percent																							
Age																								
Under 25	18	21	11	17	6	11	9	13	12	16	11	13	8	9	1	1	15	42	9	26	6	15	9	33
25-34	28	34	20	27	14	19	16	20	23	25	21	22	13	12	2	2	23	58	17	40	14	29	15	46
35 44	34	37	25	28	19	22	19	20	29	28	25	25	19	14	2	3	29	60	22	42	21	31	19	45
45-54	39	48	28	39	20	29	22	30	33	38	26	32	21	20	3	4	30	65	23	46	22	38	19	47
55-65	42	45	28	37	21	29	22	28	38	35	33	32	26	21	3	4	26	63	20	50	18	37	16	45
Over 65	41	42	29	32	16	23	22	26	36	34	31	30	25	22	2	1	16	46	12	35	10	28	8	27
Education																								
Elementary or less	42	44	32	36	21	25	27	27	36	34	31	29	26	22	3	2	22	49	18	40	15	28	14	30
Some high school	37	37	26	29	19	23	21	22	31	27	27	24	21	16	2	2	26	53	22	38	17	26	16	39
Completed high school	31	38	22	32	15	24	16	25	26	28	23	26	15	17	2	3	26	60	19	44	18	33	16	46
Some college	29	39	18	27	13	21	12	21	27	32	24	28	16	14	2	4	24	59	17	41	16	33	15	43
College graduate or more	27	40	16	28	14	22	8	18	23	30	22	27	11	14	1	2	23	62	16	40	17	35	12	46
Employment																								
Employed[1]	30	33	20	25	14	20	15	18	25	25	22	23	15	12	2	3	23	57	17	38	16	29	14	42
Not employed	36	42	26	33	19	25	21	26	31	32	27	28	21	19	2	3	25	58	19	42	17	32	16	42

[1]Employed outside of the home refers to employment of 35 hours or more for pay during the past 7 days and does not include volunteer work outside the home for which the woman is not paid

Source USDA Nationwide Food Consumption Survey 1977-78, 48 conterminous States, spring 1977 (preliminary)

An Examination of Mechanically Deboned Meat and Poultry

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The Food Safety and Quality Service (FSQS) of USDA wants to standardize les for the labeling, use, and quality con- ol of two quite similar but differently gulated products—mechanically deboned eat (MDM) and mechanically deboned ultry (MDP). Both are the result of the ocess introduced years ago that mechan- lly separates and removes most of the ne from any attached muscle tissue.

The development enables meat processors increase the output of food by over a bil- n pounds a year. But the full potential s not been realized because of the rules verning the use of labeling of the products. This article discusses the regulations that sure that MDM and MDP are safe, that process does not adversely affect the ality of meat products, and that products taining either MDM or MDP are appro- ately labeled.

gulations

The inconsistency between the regula- ns for MDM and MDP followed a 1976 rt injunction against the further manu- ture of MDM until several health and eling issues were resolved. FSQS issued al rules for MDM in 1978 that:

Changed the name of MDM to mechani- ally processed species (where species is eef, pork or lamb) product, MP(S)P;

Set standards for the protein, fat, bone ize, and calcium content of MP(S)P and quality standard for protein;

Limited the use of MP(S)P in certain roducts such as franks to 20 percent or ss of the meat block and prohibited use other products such as hamburger;

Required plants to operate an approved uality control system before labels will be pproved for products with MP(S)P; and

Required qualifiers to be added to the ame of a finished food product to indi- te it is made with MP(S)P and "con- ins up to ___ percent powdered bone."

he red meat industry alleges that the irements are a disincentive and conse- ntly, only a few million pounds of the nual output of up to 1 billion pounds IDM are produced a year.

ar more lenient regulations for MDP set in 1966, well before the controversy over MDM began. MDP is made essentially the same way as MDM—from skeletal parts of chickens and turkeys. At present, MDP regulations limit the bone content to 1 percent. No requirements exist for nutrient labeling, use standards, quality control, and product name qualifiers. With less restrictions than MDM, the use of MDP now exceeds 300 million pounds a year, half the potential output. It is used in chicken or turkey rolls, chicken loafs, chicken bologna, and many other products. However, this situation raises numerous questions similar to those raised about MDM, questions about safety, quality, and labeling.

Safety

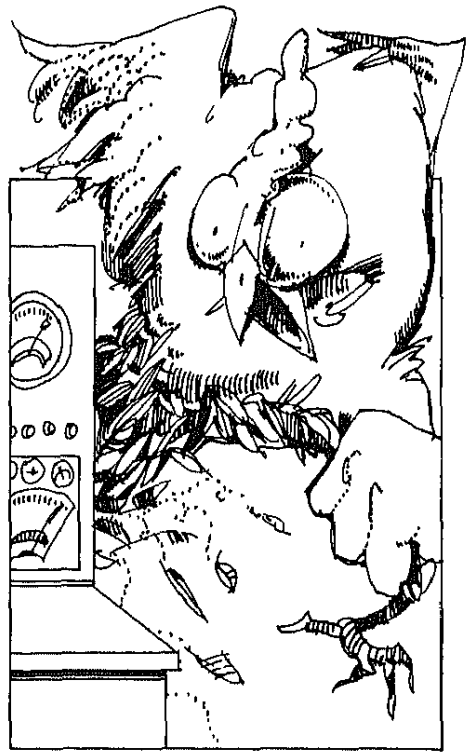
FSQS organized a panel of experts from the Food and Drug Administration (FDA), the National Institutes of Health (NIH), and USDA to conduct and evaluate studies of the health and safety aspects of the use of MDM and MDP. The safety of the mechanical deboning process was questioned because it generates a certain amount of heat, which could create bacterial problems, and a small amount of bone particle is left with MDM or MDP. The possibility of toxic levels of substances deposited in the bone marrow was also considered a potential health and safety concern.

Microbiology

The panel concluded that the microbiology of MDM and MDP production presents no unique hazards and should not be a problem if good manufacturing practices and quality control programs are used. In considering the need for additional microbiological standards, the relevant question is whether benefits from fewer health risks are large enough to outweigh the associated costs of additional standards.

Bone Particle Size

The panel concluded that slivers of bone and large angular pieces that might cause injury are more likely to be present in hand deboned meat and poultry than in MDM or MDP. The bone particles remaining in MDM are about the size of ground pepper and those in MDP are even smaller. The expert panel concluded that these bone particles would not injure any part of the digestive system and in most cases would furnish beneficial calcium and bulk to the diet.



The panel's recommendation for standards limiting maximum bone particle size has been adopted in regulations for MDM but not for MDP. It appears, however, that MDP producers may already meet the recommended standards or could do so with little problem. The amount of bone present in MDM and MDP is controlled by calcium content restrictions for lack of a suitable particle size assay test.

Toxicants

Of the minerals present in bone particles and marrow—calcium, fluoride, and cadmium were given special attention. The panel noted that the additional calcium would be a nutritional benefit to most people. But it recommended that a product containing MDM or MDP should be labeled so that the small fraction of the population on low-calcium diets for medical reasons would be alerted to the presence of increased calcium in the product. Regulations applying to both MDM and MDP set maximum calcium or bone content standards.

The fluoride content of MDM would pose no health problems, according to the panel. Caution and lack of complete information led the panel to recommend that MDM

should not be allowed in baby, toddler, or junior foods until better data are available. This recommendation is part of the current regulatory use limitations for MDM.

The panel found two types of MDP in terms of fluoride content. MDP made from mature female chickens contains levels of fluoride similar to MDM, and the panel recommended it should have the same use restrictions. MDP made from young chickens, turkeys, or mature male birds contains only slightly more fluoride than hand deboned poultry. The panel concluded that no limits on its use were needed. These recommendations have not yet been incorporated into the regulations for MDP.

Cadmium in MDM was found to pose no health hazard. The panel concluded that any potential problem from cadmium in MDP could be eliminated by not allowing kidneys from mature chickens in MDP. Current regulations for MDP do not yet reflect this recommendation.

After reviewing data from studies on the health and safety aspects of using MDM and MDP, the panel also found no cause for concern with regard to a number of other possible toxicants. This list included zinc, lead, selenium, strontium-90, cobalt, arsenic, copper, iron, nickel, chlorinated hydrocarbon residues, purines, hemoglobin levels, tetracyclines, and mercury.

Quality

Use limitations for MDM and MDP, as well as fat and protein standards for these ingredients, have been proposed to ensure the quality of final processed meat products. A second major issue involves the necessity and effectiveness of the quality of regulations.

Use Limitations

Current regulations limit the use of MDM to no more than 20 percent of the meat portion of any final meat food product such as frankfurters. MDM also cannot be used as an ingredient or extender in several important products where consumers have come to expect muscle meat—most notably ground beef and hamburger, and fabricated steaks—because it might alter the appearance and consistency of these products.

The only limitation to MDP use is consumer acceptance. MDP may be used in any product in which poultry or poultry meat is allowed, including some processed red meat products such as bologna, salami, and frankfurters. It is also the principle ingredient found in several recently developed processed poultry products such as chicken frankfurters, poultry rolls, and loaves. MDP may comprise from 1 to 100 percent of the poultry or poultry meat portion of a poultry or meat food product. Chicken franks generally contain 100 percent MDP but poultry gravies may contain as little as 1 to 2 percent.

Current disparities in the use limitations for MDM and MDP are consistent with physical differences in the two ingredients. MDM has a grainier texture than MDP because beef and pork bones are generally heavier than poultry bones. Thus, even in absence of use limitations on ingredients to regulate product quality, consumer acceptance would limit the use of MDM in many foods.

Fat and Cholesterol

The panel concluded that the lipid spectrum of MDM and hand deboned red meats was comparable and that the use of MDM would not lead to any appreciable increase in dietary cholesterol or other lipids. The panel found that MDP tends to be higher in total fat and cholesterol than hand deboned poultry. Daily increases in cholesterol consumption from use of MDP would also be negligible.

The panel recommended that the fat content of MDM and MDP be restricted within limits of good manufacturing practices, that limits be placed on the fat content of products in which MDM is used, and that foods containing MDP be labeled to indicate its presence to individuals trying to control their cholesterol intakes. Current regulations set a 30-percent maximum fat content standard for MDM at the ingredient level rather than for the final products in which MDM is used. No similar standard exists for MDP.

Protein Quantity and Quality

The panel found that MDP was lower in protein quantity than hand deboned poultry. One measure of protein quality indicated that MDP was similar to hand deboned poultry while a second measure indicated that MDP was lower quality. The panel made no comparisons between MDM and hand deboned red meats, but merely concluded that current regulations setting minimum ingredient standards for MDM protein quantity and quality were reasonable. No similar standards currently exist for MDP, but the panel recommended that they be established.

A fundamental issue on safety and quality standards is whether they should be applied to MDM and MDP as ingredients or to the final products in which MDM and MDP are used. The economic consequences of the two approaches may differ significantly, depending on the restrictiveness of the standard. If final product standards are applied, MDM, MDP, and other ingredients (which might not individually meet the standards) can be blended to produce lower cost outputs which do comply with the final product standards. However, if ingredient standards are applied, any individual ingredient such as MDM or MDP not meeting the standards would be barred from the food chain.

Limitations in detecting and assessing health risks may make it prudent to apply joint MDM-MDP safety regulations at the ingredient level as is presently the case with MDM. Application of safety standards at the ingredient level prevents unsafe ingredients from contaminating safe ingredients and minimizes losses from condemned products. Producers are also better able to trace safety problems to their source at the ingredient level.

On the other hand, regulations dealing primarily with food quality (fat and protein standards) may be more effective and efficient if applied as final product standards. For example, the effectiveness of the 30 percent fat limit on MDM as an ingredient is questionable because it merely ensures that the content of fat from MDM will not exceed 6 percent (30 percent of 20 percent) of the final product. The other 80 percent of the meat ingredients with which the MDM is blended may contain levels of fat that produce a final product with fat levels in excess of 30 percent if no comparable final product standards exist. Where final product standards do exist, ingredient stan-

rds for MDM and MDP are largely redun-
nt and simply limit potential benefits to
e consumer from blending.

Quality standards at the final product
vel are likely to be more effective and effi-
ent. This is the approach commonly taken
th other processed meat ingredients. For
ample, meat frankfurters with a maximum
ial product fat content standard of 30
rcent are commonly produced with a
end of beef and pork trimmings including:
percent lean/50 percent fat beef trim-
ngs which sold in early November 1980
r 68 cents per pound; 85 percent lean/15
rcent fat beef trimmings selling for $1.19
r pound; 50 percent lean/50 percent fat
rk trimmings selling for 48 cents per
und; and 80 percent lean/20 percent fat
rk trimmings sellings for 85 cents per
und. If the 30 percent fat standard had
en imposed at the ingredient level, two of
ese ingredients could not have been used
d the price of frankfurters would most
ely have been higher.

The same analogy could apply to MDM
d MDP. Variability in the fat and protein
ntent of the inputs that go into the
chanical deboning machines will result in
iability in the fat and protein content of
resulting MDM and MDP. This vari-
lity is not always easily predicted or con-
lled. Quality standards at the input level
uld eliminate at least some of the ingre-
nts from use in edible products. Stan-
ds at the final product level would per-
greater cost savings through blending
h greater assurance of final product
ality. Of course, to the extent that blend-
of different batches of MDM or MDP is
sible, the cost of quality constraints on
se products would be lessened.

eling and Economic Adulteration

The most complex and controversial reg-
ory issue is how products containing
M and MDP should be labeled to dis-
inate accurate information. Labeling is
an important factor in dealing with the
ty and quality issues discussed earlier.

nomic Adulteration

MDM and MDP, which are relatively
cost ingredients, can be substituted for
more expensive ingredients in processed meat products, the savings to consumers could be substantial. One estimate based on 1976 data places the potential price reduction at 9.7 cents per pound for processed pork products and 10.7 cents per pound for processed beef products. In competitive markets, prices should adjust downward over time, reflecting lower input costs. However, some fear exists that this substitution could result in economic adulteration —"cheapening" processed meat and poultry products without consumers' knowledge. Even when the products are still wholesome, safe, and sanitary, if quality is altered without the knowledge of the consumer, economic adulteration has occurred.

Use of MDM and MDP should result in a wider array of processed meat and poultry products as processors establish new product lines. Diversity of products and product qualities is generally regarded as desirable because it enlarges choice. Consumers should, however, be aware of quality differences to make informed choices and receive the benefits of any associated cost differences. Labeling requirements are intended to achieve this end.

Labeling

Some of the major labeling issues are:

- Should MDM and MDP be designated differently from other meat and poultry ingredients?
- If MDM and MDP are designated differently what should MDM and MDP be called?
- How should the presence of MDM and MDP be indicated—in the product name, in the ingredients statement, in a nutritional panel, in a descriptive paragraph, or some combination of these?
- Should attention be drawn to any of the distinguishing characteristics of MDM and MDP ingredients—calcium content, powdered bone content, fat content, cholesterol levels, protein quantity or quality?

Nowhere is the difference in the current regulatory treatment of MDM and MDP more apparent than in labeling. The names of products containing MDM must be qualified by the phrases "With Mechanically Processed (Species) Product," "Contains __ percent Powdered Bone," and MP(S)P must be listed in order of predominance in the ingredient statement. No special labeling is required on products containing MDP and the ingredients statement simply indicates the presence of poultry or poultry meat.

Questions have been raised as to whether the present designation for MDM, mechanically processed (species) product, conveys accurate or descriptively useful information to consumers. Meat processors argue that it does not. They say that all meat is mechanically processed with mechanical knives, saws, conveyors, and grinders, and that the word "product" implies something artificial. Numerous other names have been suggested for MDM, including "mechanically deboned meat," "mechanically trimmed meat," "mechanically separated meat," "mechanically recovered meat," "calcium enriched meat," and "tissue from ground bone."

The options available to FSQS are many and varied and the ones ultimately selected could have a significant impact on consumers, the red meat industry, and the poultry meat industry. Relaxing MDM rules could encourage growth in the use of this ingredient in new products and possible lower prices. Stricter rules for MDP could slow the rate of growth in use of this ingredient and increase prices of the products made from MDP. Some combination of changes that result in more lenient rules for MDM and less lenient for MDP might produce the environment where consumers and the two industries will all benefit. ■

References

Health and Safety Aspects of the Uses of Mechanically Deboned Meat: Volume I—Final Report and Recommendations, Select Panel; and Volume II—Background Materials and Details of Data, USDA, FSQS, August 1977.

Health and Safety Aspects of the Use of Mechanically Deboned Poultry, USDA, FSQS, June 1979.

McNiel, Douglas W. "Economic Welfare and Food Safety Regulation: The Case of Mechanically Deboned Meat," *American Journal of Agricultural Economics,* February 1980, p. 8.

Adding Nutrients to Foods: The Pluses and Minuses

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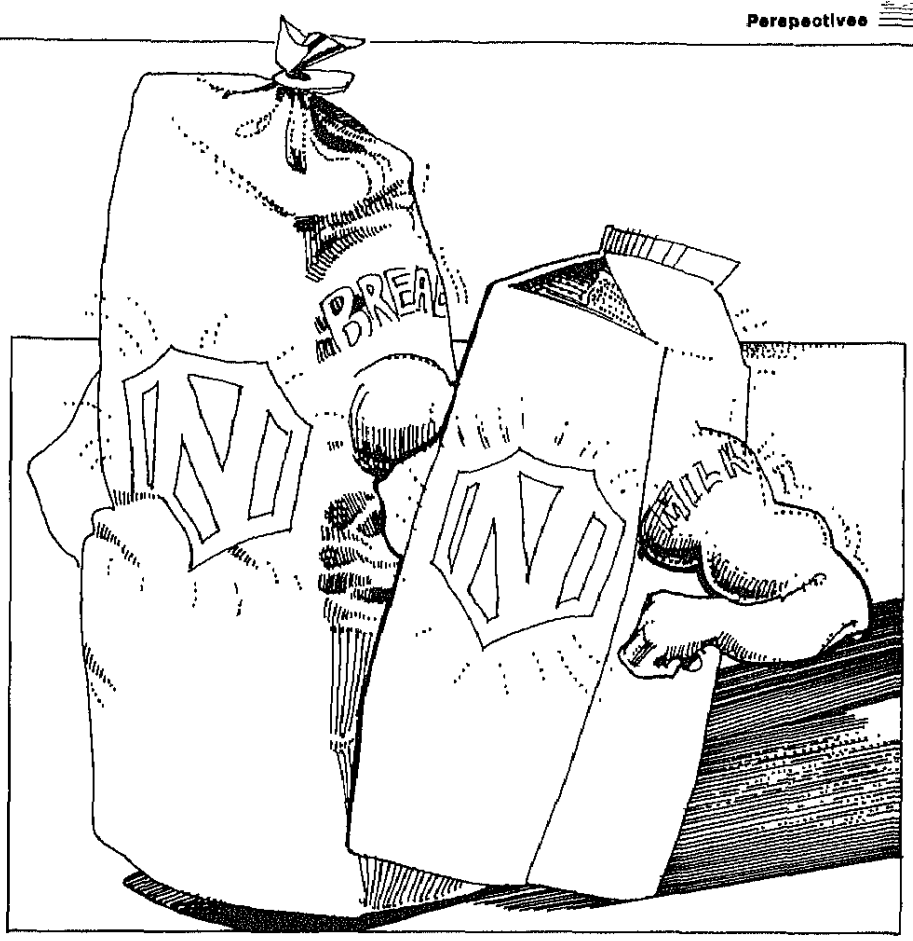

Advances in human nutrition have increased concerns over the nutritional adequacy of our diet. Health professionals, Government officials, food producers, and consumers are asking: Which nutrients are being added to which foods, and in what amounts?

Food enrichment means the restoration of nutrients which may be lost in processing, storage, and distribution. Fortification means adding nutrients not contained in the original product. These two terms are usually interchanged, since many consumers are unaware of the distinction.

Historically, nutrients have been added to foods to eradicate various nutrition deficiency problems.

Fortification was first begun in 1924 with the addition of iodine to salt to help prevent goiter. In 1933, the Council on Foods and Nutrition of the American Medical Association recommended the addition of Vitamin D to milk, which along with calcium and phosphorus, prevents rickets. During World War II, grain products were enriched with thiamin, niacin, riboflavin, iron, and calcium. Military physical examinations had found that some men suffered poor health due to inadequate nutrition during childhood. Most of these fortification and enrichment efforts continue, and nutrition deficiency problems such as goiter, beriberi, pellagra, and rickets that were once major public health concerns have virtually disappeared in this country.

The benefits of further fortification programs are less obvious and can only be determined through extensive biochemical testing. Improved health can mean anything from "feeling better" to increased resistance to disease, recovering more quickly from illnesses, and correcting nutrient deficiencies.

Some nutritionists contend that fortification beyond that required to stave off deficiency diseases is beneficial—why not make the foods that people eat (even "junk food") more nutritious? Paul Lachance, professor of nutrition physiology at Rutgers, points out that despite 25 years of nutrition education, Americans haven't learned the "basic four" food groups, and that we are "creatures of food habits and not of food instincts." Other nutritionists assert that, with decreased U.S. per capita food intake, as reflected by the 1977-78 Nationwide Food Consumption Survey, more people may receive insufficient nutrition. Yet, encouraging people to eat more could increase the incidence of obesity.

If people are not going to eat enough of a variety of different foods, shouldn't the ones they do eat provide them with the required quantities of essential nutrients, if possible?

The obstacles to be overcome and risks to be assessed in any fortification program include:

- Identifying National nutrient needs and the population groups lacking the nutrients;
- Technological concerns of adding nutrients to foods;
- Risks to certain segments of the population of consuming toxic doses of various nutrients used in fortification;
- Risks that could occur if fortification programs exclude nutrients which have not been identified as essential; and
- Risks resulting from consumers' inability to discriminate between fortified and nonfortified foods.

Nutrient Needs

Various HHS and USDA studies have assessed food consumption and dietary habits. Dietary needs are currently measured against the Recommended Daily Allowance (RDA) standards, which are suggested nutrient intake levels by age and sex. An individual's nutrient needs may vary substantially from the RDA values. Variables such as body size and composition, nutritional status, rate of metabolism, general health and physical condition, biochemical make-up, level of physical activity, and drug intake all determine the body's nutritional needs and its ability to use nutrients.

Some nutritionists contend that much information is needed on food habits, dietary patterns, and the food supply to develop an optimal fortification policy. For example, protein intake by most Americans is sufficient, implying that protein fortification of foods, such as candy bars, is not necessary to achieve an adequate diet. Value judgments on the appropriate foods and nutrients for fortification are also involved.

Technological Concerns

Technological concerns include finding a chemical form of the nutrient in question that will not change the consumer accept-

ability of the product to which it is added (for example, taste, color, texture, and shelf life). Of course, the nutrient must be in a form usable by the body.

While natural and synthetic vitamins or minerals may be chemically identical, the choice of the food to serve as a carrier is an important determinant of utilization by the body. The food should not contain any elements that would impede absorption or utilization of the nutrient being added. Tannin, a component of coffee and tea, impedes the body's absorption of iron and other minerals. Vitamin C and meat, on the other hand, enhance iron absorption. Other such interactions between nutrients and food components are still being defined.

Toxic Dose Risk

Another concern is the danger of toxicity. Trace minerals are required in such small amounts that a single dose several times larger than the required level can touch off a toxic reaction. Vitamins A and D are stored by the body, so high intakes over a period of time can accumulate to toxic levels.

Discrimination of Fortified Products

Some consumer groups contend that it may be very difficult for consumers, especially children, to distinguish between fortified and unfortified products. This viewpoint has arisen in the debate over the "formulated grain fruit product" which is approved for use in the USDA School Breakfast Program. It is questionable whether a child can discriminate between these fortified doughnut-like or breakfast bar products they may receive at school as part of a nutritious breakfast and unfortified doughnuts and candy bars.

A "back to nature" movement with regard to food production advocating minimal processing of foods was developed in the 1960's and 1970's. This was partially based on the belief that additional processing results in nutrient loss.

FDA Policy

The Government's role in setting enrichment and fortification standards is spread among several agencies. In January 1980, the Food and Drug Administration (FDA) issued a fortification policy and specific nutritional quality guidelines.

FDA can also enforce labeling claims on fortified products to ensure they are not misbranded. FDA also keeps foods from being unnecessarily fortified.

Although the Federal Trade Commission does not regulate advertising claims for fortified foods, it does have jurisdiction over the "truth in advertising" of these products.

Manufacturers are urged by the Government to adhere to the following guidelines:

- To correct a dietary insufficiency recognized by the scientific community;
- To restore nutrients to levels representative of the particular food prior to storage, processing, and handling;
- To balance the vitamin, mineral, and protein content of a food by adding these nutrients in proportion to the total caloric content of the food; and
- To make substitute foods nutritionally equivalent to the food for which they substitute and thus avoid nutritional inferiority. (For example, margarine very often replaces butter in the diet. Since butter contains a substantial amount of Vitamin A, margarine is fortified with this vitamin.)

The purpose of this fortification policy is "to establish a uniform set of principles that will serve as a model for the rational addition of nutrients to foods. The addition of nutrients to specific foods can be an effective way of maintaining and improving the overall nutritional quality of the food supply." (*Federal Register,* January 25, 1980, p. 6323)

The statement also voices concern that "random fortification of foods could result in overfortification or underfortification in consumer diets and create nutrient imbalance in the food supply."

The U.S. fortification policy has shifted from the early, specific programs designed to alleviate certain deficiency diseases to the present broader policy. The new policy is due to scientific advancement and technological change in the areas of food production and nutrition, as well as the availability of more information on dietary habits. ■

Food Stamp Policy Options

Joyce Allen
(202) 447-8489

The Food Stamp Act of 1977 will expire September 30, and several policy issues will be addressed during congressional debate on reauthorization of the Food Stamp Program (FSP). Options such as restoring the cash purchase requirement or providing assistance in cash rather than food coupons may be considered, along with minor provision adjustments.

Several provisions were implemented in the FSP in 1980 to limit costs (see NFR-11, Summer 1980). With continued emphasis on controlling the growth of the Federal budget, the cost of various food stamp policy options will be a primary consideration during debate on reauthorization of the FSP. Another key issue is the amount of flexibility that food stamp participants should have in food purchases.

Review of Food Stamp Legislation

In 1939, USDA introduced a food stamp program primarily designed to distribute surplus food through regular market channels. Increased demand for food and rising employment in World War II terminated this program.

The FSP was revived in 1961 as a pilot operation and was made part of permanent legislation by the Food Stamp Act of 1964. The objectives of this legislation were to raise farm income and improve the levels of nutrition among low-income families. Under the 1964 Act, States were granted the authority to establish eligibility criteria for participation in the FSP, and set eligibility limits based on the amount of household income and other financial resources.

Generally, income standards were consistent with those used by the State welfare agencies in administration of the federally aided public assistance programs. Households participating in the FSP were issued an allotment of food stamps which had a greater monetary value than the price charged for the stamps. This constituted a recipient's bonus.

Under 1971 amendments, households with little or no income were granted free food stamps. In addition, the maximum purchase price for stamps was set at 30 percent of net monthly income.

A shift in food assistance policy occurred

in the 1973 amendments which required all States to implement the FSP in all of their political subdivisions by June 30, 1974. While the number of counties participating in the FSP increased from 43 in fiscal 1964 to 2,227 in fiscal 1973, about one-fourth of the U.S. counties still did not offer the FSP, but continued to participate in the Commodity Distribution Program (CDP).

Under the CDP, needy persons were eligible to receive donated foods rather than food stamps. Food stamps allowed recipients to select from a greater variety of food than the CDP offered. At the same time, the FSP became the major public policy instrument for raising nutrition levels among low-income families.

An amendment to the Food Stamp Act of 1977 eliminated the requirement that participants pay for a portion of their food stamp allotments, beginning January 1, 1979. Studies showed that only about half of all eligible low-income households actually participated in the program during the mid-1970's, and that the purchase price was a major reason.

The FSP Today

Participation in the FSP rose from an average of 16 million persons in fiscal 1978 to 21.1 million in fiscal 1980. Elimination of the purchase requirement and changing economic conditions are the major factors responsible for this 35 percent increase in participation. It is estimated that dropping the purchase requirement, alone, has added about 4 million persons to the food stamp rolls, most significantly among the rural poor and the elderly.

At the same time, slower economic growth also contributed to the increase in the number of food stamp eligibles and participants. Unemployment climbed from 5.8 percent in fiscal 1979 to 7.8 percent in July 1980. Each 1-percentage point increase in unemployment adds from 750,000 to 1 million people to the program.

The combination of rising program participation and higher rates of inflation has boosted the cost of the FSP. Although food stamp benefits are adjusted annually to compensate participants for lost purchasing power, increases in the rate of inflation will result in increased costs. Federal expenditures for the FSP are expected to total $9.5 billion in fiscal 1980 and $10.8 billion in fiscal 1981; program costs were $6.5 billion in 1979.

Alternative Policies

While most policymakers agree that food assistance to the needy should be available they do not agree on the most desirable method. Policy instruments include in-kind assistance, such as food stamps, and cash transfers.

Altering the present program is one option available to Congress. Under this option, participants would continue to receive free food coupons. With the elimination of the purchase requirement, FSP participants have increased flexibility in allocating their income. This increased flexibility makes the program more attractive to eligible persons, and results in greater participation. Elimination of the purchase requirement has also simplified program administration and removed the handling of cash by food stamp vendors.

Another policy option is reinstatement of the purchase requirement, considered by Congress in 1980 but rejected. Two amendments concerning the purchase requirement were introduced on the floor of the House of Representatives. One would have restored the purchase requirement for all households and the second amendment would have restored it for all households except those containing members who were either elderly, blind, or disabled.

One argument put forward for reinstitution of a purchase requirement is that it would increase expenditures for food. Several economic studies have found that a purchase requirement would compel some households to increase their expenditures on food. Small or very low-income households whose food budgets were less than their food stamp allotment in the pre-1977 FSP were compelled to increase their food expenditures. However, most food stamp households were spending more for food than their cash requirement for stamps plus their bonus. Most of these households spent $25 or more per month above their food stamp allotment.

The nutritional status of food stamp recipients is a key concern in restoring the purchase requirement. Food expenditures are likely to increase slightly if the purchase requirement is reinstated. However, since recipients can use food stamps to obtain any food for human consumption except hot meals, improved nutritional levels may not result from increased food expenditures. The increased purchasing power targeted on food could be used to obtain more expensive, but not necessarily more nutritious foods.

A third policy option is providing cash assistance rather than food stamps to needy persons. Under this option, the current FSP would be integrated with the welfare system. Cash assistance in lieu of stamps would offer complete flexibility for food stamp participants. Thus, recipients would receive an increase in satisfaction.

A comprehensive welfare reform bill was introduced in 1977. The proposal, known as the Better Jobs and Income Program (BJIP), would have provided cash assistance and jobs to the poor. Integration of the FSP with Aid to Families with Dependent Children (AFDC) and Supplemental Security Income (SSI) would also have been required under this program. However, Congress chose not to adopt the proposed reform.

Factors that hinder the movement toward cash include its impact on improving the diets of the poor and the cost of cashing out the program. A major objective of the FSP is to raise the levels of nutrition among the needy. With assistance in cash rather than food stamps, there is no assurance that households will allocate a sufficient share of income to buy the foods that will upgrade their diets.

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Dairy Policy: An Overview

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Milk has been called the most regulated of farm commodities. Price supports, milk market orders, import restrictions, sanitary regulations, and product grading are all ways in which the Government influences the economic environment of decision making in the dairy industry. Rapidly rising food prices, Federal budget costs, and pressure for increased scrutiny of Government regulations have made policy decisions concerning dairy programs an increasingly visible issue.

The high degree of Government involvement in the dairy industry arises from the unique characteristics of milk:

- it's a vital source of nutrients, especially important in the diets of children;
- it's highly perishable, and can spread disease if improperly stored and handled; and
- it has substantial and conflicting seasonal fluctuations in supply and demand.

Goals

The high cost of shipping milk and the desire to ensure that milk is produced and marketed under sanitary conditions, require that milk be produced near demand centers and under jurisdiction of American laws and regulations. The goal of dairy policy has been to maintain an adequate domestically produced supply of wholesome milk. This policy goal is not unique to the United States; virtually every industrialized country has government programs to foster and protect its dairy industry.

The seasonal fluctuations in supply and demand, and the impossibility of storing fresh milk for long periods of time, create a situation in which large seasonal swings in prices and production can occur. Thus, in order to ensure an adequate supply of fresh wholesome milk, the Government not only protects the domestic dairy industry from relatively low-cost (often subsidized) imports, but also regulates milk prices and stabilizes market conditions.

Programs

The Federal Government has three dairy programs which directly affect the industry: Federal milk market orders, the dairy price support program, and import restrictions.

Federal milk market orders in 47 areas of the country set minimum prices which dairy plants must pay to farmers for fluid grade (grade A) milk that was used in fluid form. Fluid grade milk is produced under more stringent sanitary conditions than manufacturing grade (grade B) milk and is more costly to produce. Fluid grade milk may be sold in fluid or "bottled" form, or transformed into manufactured dairy products such as butter and cheese. Manufacturing grade milk, however, is only used in production of manufactured products.

If there were no variability in supply or demand, or if milk were storable, all Grade A milk would be sold to bottlers, and all Grade B milk would be sold to manufacturers. The differences in production costs between Grade A and Grade B would be reflected in the differences in prices paid between bottlers and manufacturing plants. But because of fluctuations in supply and demand, farmers produce more fluid grade milk than is consumed in fluid form.

Cows naturally produce more milk in the spring and summer months, when they are on pasture, than during fall and winter, when they are fed in barns. Consumption, on the other hand is highest in fall and winter, when children are in school, and lowest in summer.

Therefore, if there is exactly enough milk to meet fluid demand in October, there will be an excess supply in May. The fluid grade milk in excess of what is needed for drinking is channeled into production of butter and cheese. There is also excess milk on a weekly basis because bottling plants demand large amounts of milk on Fridays and very small amounts on Sundays, when many are closed.

In the absence of a Government program, Grade A farmers shipping to butter and cheese plants for part of the year would receive the same price paid by the plants to Grade B producers—a price too low to cover the additional costs of producing Grade A milk. An insufficient price could drive these Grade A farmers out of business in the spring and summer months leading to a shortage of fluid grade milk in the fall and winter.

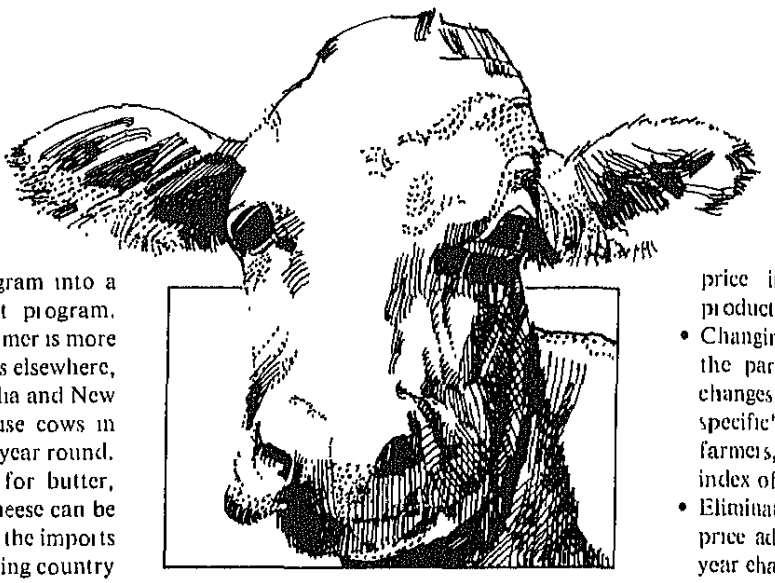
The Federal milk order program: sets a higher price (the Grade B price plus a fixed differential) paid by bottlers for milk used in fluid form; pools together the revenues from all sales of fluid grade milk in an area, whether the milk is used by a bottler or a manufacturer, and; pays all Grade A farmers in the area the same price. This system provides equity among farmers and eliminates the large seasonal fluctuations in price which individual farmers would face if they were forced out of the fluid market during certain parts of the year. A Federal milk order is instituted at the request of the dairy farmers in an area, but the exact provisions of the order are based on testimony collected at public hearings.

The dairy price support program tends to set a floor under the prices paid for manufacturing grade milk by butter and cheese manufacturers. The Government stands ready to buy butter, American-type cheese, and nonfat dry milk at announced prices which are calculated to allow butter and cheese plants to pay dairy farmers the support price for milk.

The support price is calculated as a percentage (fixed by law between 80 and 90 percent) of the "parity price." The parity price is determined by means of a complicated formula which estimates an artificial price for manufacturing grade milk during the 1910-14 period, and adjusts that price to the present, using a measure of inflation in prices paid by farmers for production and living expenses. The parity index is not specific to the dairy industry.

Whenever butter and cheese manufacturers are unable to sell their products at prices higher than the Government purchase prices, they sell these products to the Government. The Government accumulates stocks of butter, cheese, and nonfat dry milk, some of which is used in P.L. 480 Food for Peace, school lunch, food for the elderly, and other similar programs. The Government will sell back these commodities at prices 5 percent above the purchase prices. Thus the price-support program often serves to stabilize prices within a rather narrow range.

The operations of the price-support program require import restrictions. Otherwise lower priced imports would drive domestically produced milk into Government stocks until world and domestic prices equalized,



in effect turning the U.S. program into a worldwide dairy price support program. Although the American dairy farmer is more efficient than most dairy farmers elsewhere, milk production costs in Australia and New Zealand are much lower because cows in Oceania can be kept on pasture year round.

Import quotas are imposed for butter, nonfat dry milk, and cheese. Cheese can be imported above quota as long as the imports are not subsidized by the producing country to such an extent that the imports undercut domestic cheese prices.

Problems and Prospects

Dairy programs have worked well in the past—milk is sanitary and wholesome, supplies are adequate, and the domestic industry is healthy. But recent developments are causing increased pressure to reevaluate or alter the existing programs.

In our bid to encourage freer international trade, and open up new markets for U.S. exports, dairy import restrictions have become an important negotiating point. U.S. trading partners often point to the relaxation of U.S. dairy import restrictions as an appropriate exchange for their concessions in other areas.

Concern over high food-price inflation and suspicion that Government regulations may be a contributing cause have raised public consciousness about the existence of dairy programs. Consumer groups and organizations representing major users of milk and dairy products have joined together in demanding a reevaluation of the desirability of current programs.

Recently, Government stocks of dairy products and the cost of the price-support program have increased to historically high levels, presenting an increasingly large target for the ax of the budget balancer.

New techniques are being developed which may make it possible to store milk for extended periods of time and to transport milk more cheaply. If these technologies (ultra-pasteurization, reconstitution, and frozen concentration of milk) become commercially viable, milk will be similar to other seasonally produced but storable commodities, and there will be less need for market-stabilizing programs.

Dairy Policy Options

As a result of this increased attention to dairy policy, several important changes in dairy programs are being actively considered. These options include adoption of new programs as well as alterations of existing programs.

A. New Programs

Many of the suggested changes in dairy policy are aimed at lowering the cost of the price-support program. A recent General Accounting Office report suggested that commercial demand for dairy products be bolstered by increased generic advertising. As commercial purchases increase, Government purchases would decline.

B. Import Restrictions

Dairy producer associations have focused attention on dairy imports, especially casein, as a cause of high support program costs. Casein, a high protein product derived from milk, is used in such diverse products as ice cream, non-dairy coffee whitener, white wash, and industrial lubricants, and is currently exempt from import restrictions. Those who favor restricting casein imports argue that, as casein is used increasingly in food products, it is serving as a cheap substitute for nonfat dry milk. As commercial use of nonfat dry milk declines, Government purchases and program costs increase. Recent International Trade Commission hearings held at the request of Congress failed to find a significant impact of casein imports on domestic dairy prices.

C. Price-Support Program

USDA has been studying methods of controlling support-program costs by changing certain details of the program. Some of the options being considered are:

- Eliminating the "parity" concept entirely, and calculating the target milk price in terms of costs of milk production.
- Changing the method of computing the parity price equivalent by tying changes in this price to a "dairy-specific" index of prices paid by dairy farmers, rather than the more general index of prices paid by all farmers.
- Eliminating automatic twice yearly price adjustments in favor of once-a-year changes.

D. Federal Milk Market Order Program

USDA has received a petition to change the regulatory treatment of reconstituted milk under Federal milk orders. Reconstituted milk is made by mixing milk powder, water, and butterfat. Proponents of reconstitution claim that a mixture of reconstituted and fresh milk would be as tasty and nutritious, but cheaper than fresh milk because reconstituted milk can be stored and transported more cheaply than fresh milk. (See NFR-10.) Cheaper transportation would encourage milk production in low cost producing areas (such as Minnesota and Wisconsin), and discourage milk production in high cost areas (such as Florida). USDA conducted a study of the potential impact of the proposed changes on dairy farmers, consumers, milk handlers, and the Government. It is asking for public comments before deciding whether or not to hold a public hearing on the issue.

Prospects

In the future, more radical changes in the existing dairy programs will be considered. Perhaps provisions used in other commodity programs, such as deficiency payments, can be applied to the dairy industry. Perhaps we can learn from dairy programs in other countries. Canada, for example, has strict quotas specifying how much milk each farmer can sell at the Government-specified price. Or perhaps, the dairy industry will move towards deregulation and an increasing reliance on the free market. Any changes in dairy programs will affect consumers, as well as farmers, processors, and agribusiness firms, and these participants have an interest in making an informed contribution to the policy making process. ■

USDA Actions

Food Safety and Quality

Court Order Volds Parts of USDA Standards for Country Ham

USDA cannot enforee the time and temperature requirements of its standards for country ham because of a recent court order.

The standards are intended to insure that the products have traditional characteristics before they can be labeled "country ham," "country style ham" or "dry cured ham." They require minimum time periods and a maximum temperature during curing, salt equalization and drying.

The standards were challenged by Tennessee Valley Hams Inc., and the U.S. District Court for the Western District of Tennessee struck them down last fall.

The rules had required the combined period foi curing and salt equalization not be less than 45 days for hams and 25 days for pork shoulders; the total time period for curing, salt equalization and drying not be less than 70 days for hams and 50 days for pork shoulders; and during drying and smoking periods, the internal temperature not exceed 95 degrees Fahrenheit (35 degrees Celsius).

USDA is requiring that provisions of the standard still be met to ensure that country hams maintain traditional characteristics. For example, hams must be coated thoroughly with dry salts so they do not require refrigration, and they must weigh at least 18 percent less than the fresh uncured product.

USDA to Realign Structure of Meat and Poultry Inspection Fnrees

USDA will realign the field structure of its meat and poultry inspection program to reduce administrative costs and to more equitably distribute inspection workloads across the country.

The present supervisory structure, organized in the early 1970's, includes 35 area offices throughout the United States.

This realignment of field personnel is one of a number of actions taken during the past few years to keep meat and poultry inspection up-to-date, efficient, and cost effective. Because no changes will be made in the size of our in-plant inspection forces, this realignment will in no way diminish the assurrance consumers have of purchasing safe, wholesome, and truthfully labeled meat and poultry products.

Area offices being phased out are located in: Montgomery, Ala.; Louisville, Ky.; Charlottesville, Va.; Storis, Conn.; Trenton, N.J.; Lincoln, Neb.; St. Paul, Minn.; Olympia, Wash.; Lansing, Mich.; and Indianapolis, Ind.

USDA's Food Safety and Quality Service administers Federal meat and poultry inspection laws to provide continuous mandatory Inspection of slaughtering and processing facilities.

In recent years, audits conducted by USDA and the General Accounting Office revealed weaknesses in State and local management of the school lunch programs.

Some of the deficiencies Included inadequate procedures for reviewing student applications for free and reduced price meals; errors in counting, claiming and costing for meals served; and lack of compliance with Federal standards regarding meal components.

To correct these problems, the new regulations require States to monitor school lunch programs by conducting on-site reviews to determine compliance with national standards.

According to the regulations, States may select one of three systems for monitoring the lunch program.

The three options include an audit system, a review system, or a combination of audits and reviews. Each system requires on-site evaluations of school programs. However, requirements vary with each system regarding frequency of visits and actions taken regarding deficiencies.

This flexibility is provided to States because comments from local and State officials, school administrators, school food service workers, and parents pointed out differences In problems and resources from State to State.

Additional Federal funds are being provided to States to offset expenses for monitoring responsibilities. About $4 million is allocated to States for this purpose.

Currently, 27 million children receive meals In 95,000 schools through the National School Lunch Program at a Federal cost of $3 billion a year. Schools and States file

claims for Federal money based on the number of free, reduced price, and paid meals they serve. In turn, they must serve meals that meet Federal standards.

USDA Increases Inspection Fees for Fresh Fruits and Vegetables

USDA's Food Safety and Quality Service (FSQS) increased the fees it charges industry to inspect and grade fresh fruits and vegetables at destination markets.

The new fee schedule will, among other things, increase fees for examining both the quality and condition of a product or its condition only.

FSQS will charge $38 to inspect more than half a carlot of a product for quality and condition, $32 for each half carlot equivalent or less of an individual product and $76 maximum for each carlot equivalent when more than one kind of product is involved.

A carlot of potatoes, for example, weighs between 40,000 and 45,000 pounds, depending on how it is packed.

For condition inspection only, new charges are $32 each for volume of product in excess of one-half carlot, $30 for each half-carlot equivalent of an individual product or less, and $64 for each carlot equivalent when more than one kind of product is involved.

Rates for inspection conducted on a per hour basis, small package inspection fees, and the inspection charges for peanuts, pecans, and other tree nuts will also be raised.

FSQS sets grade standards and provides official grading and inspection for many food products under authority of the 1946 act. Use of the standards and grading service is voluntary and is paid for by the industry.

FSQS makes quality inspections to determine grade levels. Condition inspections only attest to how the product has fared in transport and storage. They cover such factors as wilting, shriveling, fresh worm damage, freezing injury, bruising, and mechanical injury. At the request of applicants, FSQS inspectors certify the condition of products.

Changes in Standards for Food Containers

Food containers may be inspected for condition during processing to allow earlier detection of problems in a production cycle.

Inspection during processing will enable USDA inspectors to detect defects which may be caused by such things as packaging machines which are not properly adjusted. This will mean that inspectors can reject portions of a lot rather than an entire lot, increasing inspection efficiency and creating savings for processors.

Currently, inspection is made after a production lot is completed. If inspection reveals any portion of a lot to be unsatisfactory, the entire lot is rejected. Under the new rules, USDA will have the option of inspecting either during or after processing.

Nutrition Education and Research

USDA Proposes Optional *Food Stamp Reporting System for States*

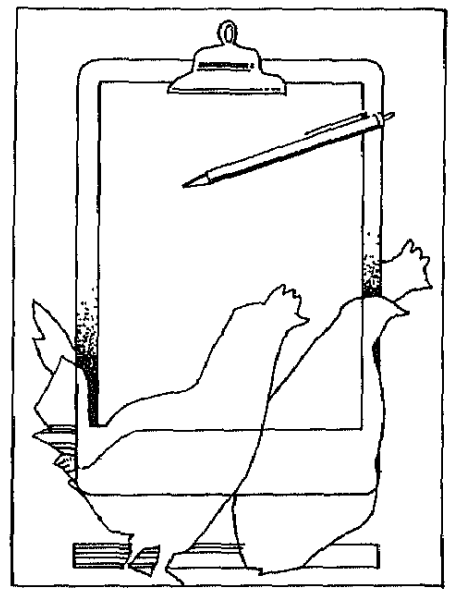
State agencies with the necessary computer capabilities may be able to match food stamp benefits more accurately to households' changing circumstances under a proposed income reporting system.

The new system would allow States to issue benefits based on monthly reports of participants' actual past income, and is designed to provide a tool to States that may help reduce error rates.

Tuskegee Institute to Study New Poultry Inspection Procedure

The veterinary school at Tuskegee Institute, Tuskegee, Ala., will conduct a $295,000 study of flock testing to increase efficiency in the U.S. Department of Agriculture's poultry inspection program.

In a flock testing program, inspectors would review information on flocks before slaughter to determine disease conditions, and birds from healthy flocks would require less stringent inspection after slaughter.



The study will help us determine if flock testing is a practical and accurate method of determining if birds suffer disease conditions likely to result in condemnation after slaughter. We need to know if flock testing will improve the inspection program without reducing consumer protection.

In the broiler industry, a single flock of birds may be raised under highly controlled conditions and be relatively homogeneous, and some scientists believe it possible to predict the health status of the entire flock at slaughter.

Questions about meat, poultry product and fresh and processed fruits and vege tables should be directed to (202) 472-4485 or by mail to FSQS Consumer Inquiries, USDA, Washington, D.C., 20250 The 202 phone is not toll free.

Examples of inquires USDA can respond to are: Complaints about foreign objects—such as a piece of metal or hair—in meat or poultry products; illness resulting from eating a product containing meat or poultry; or complaints about products that are incorrectly graded or labeled.

Food Assistance

USDA to Buy Ground Beef with Soy for School Lunch Program

USDA will buy frozen ground beef with soy protein added to test the product's acceptability for use in USDA's school lunch program.

If ground beef with soy added is acceptable for school lunches, it could lead to substantial savings for the program.

USDA is buying a mix of 80 percent ground beef and 20 percent hydrated soy. The purchase will be made with the same basic specification (Interim Federal Specification, Ground Beef Products, Frozen—PP-B-2120) now being used in the regular ground beef purchase program.

The specification is being amended to permit the use of three types of soy bean derivatives—soy flour, isolates, or concentrates. The three differ principally in consistency, the amount of protein they contain and cost.

USDA Food Program for Women and Children Altered

Food packages provided to women and children in a USDA supplemental food program will be more closely tailored to their differing health and nutrition needs in the future.

The special supplemental food program for women, infants and children—WIC—provides food and nutrition education as an adjunct to health care to 2.1 million low-income women and children up to 5 years of age with special nutritional needs. Women reached by the program are either pregnant or breastfeeding or have recently given birth.

Previously, WIC offered only three food packages—one for infants, one for women and children, and one for children with special dietary needs. Under final rules, the number of packages will be expanded to six, specifically geared to the dietary needs of the different participants.

The six packages will be designed for infants through 3 months; infants 4 through

12 months; women and children with special dietary needs; children 1 to 5 years; pregnant and breastfeeding women; and non-breastfeeding postpartum women.

The food packages include such items as adult and infant cereal, juice, eggs, milk and cheese, iron-fortified formula, and the latest additions of dried beans, peas, or peanut butter.

The rules establish a maximum level of 6 grams of sugar per ounce of dry cereal for all cereals authorized under the program. This eliminates cereals in which sugar constitutes more than 21 percent of the cereal by weight. In addition, the WIC program will continue to restrict cereals to those containing at least 45 percent of the U.S. Recommended Daily Allowance for iron.

The regulations will permit infant cereal and infant or adult juice to be introduced to infants when appropriate after 4 months of age, at the discretion of a medical professional. Under the previous rules, infant or adult juice could be introduced to infants at any time between 0 and 12 months of age. However, under the new regulations, USDA will discourage issuance of juice before 6 months, and will stress that juice only be given from a cup, to help prevent tooth decay.

To supply more protein to pregnant and breastfeeding women and to provide an incentive to breastfeed, a choice of one pound of dried beans or peas or 18 ounces of peanut butter has been added to the food package for pregnant and breastfeeding women. Dried beans or peas or peanut butter have also been included in the food package for children to increase food variety and give children the benefit of added protein.

USDA Sets New Standards for School Lunch Management

A comprehensive management system for finding and correcting problems in local school programs went into effect Jan. 1, 1981.

Under the system, there will be new requirements for State reviews of lunch programs, actions to remedy problems found by reviews, and plans for recovering Federal funds misspent in the program.

This new system is designed both to improve the administration of the program and make certain that all the necessary components of school meals are being served to children.

Under the proposed system, a household would mail in reports of its income, deductions, and other household circumstances for a prior month. The State would then use these figures, rather than information about a household's current and future circumstances, to determine the household's eligility and benefit level.

Under the proposed system, States would continue to use a household's current circumstances to determine its eligibility and benefits for the initial months the household is on the program. After the first months, benefits would be based on the food stamp household's actual income and circumstances for a previous month.

The proposed system would be optional, because not all States have the computer technology and management systems necessary to operate the system, which entails processing reports and recomputing benefits on a monthly basis.

State agencies that choose to use it could select certain project areas and groups of par-

ticipants for the reporting requirement. The system will not apply to recipients of supplemental security income or social security because they have relatively stable incomes and because the requirement to complete a separate form each month might be burdensome for the elderly, blind and disabled.

Next year USDA's Food and Nutrition Service will test the impact of this income reporting system on administrative costs and procedures, benefit levels, error rates, and client services through a demonstration project in two Illinois sites—Peoria County and the Southeast local office of Cook County.

The test will start in January 1981 and will run for a year and a half. Proposed regulations on the income reporting system, as well as test procedures for the demonstration project, were published in the Dec. 5 *Federal Register.*

USDA Increases Assistance for Meals to Elderly

USDA will increase the level of assistance it provides in donated foods and cash to nutrition programs for the elderly during fiscal year 1981 from 43 to 47.25 cents per meal.

This will be a 9.87 percent cost-of-living increase in donated foods and cash assistance USDA provides to federally funded elderly nutrition programs.

The adjustment reflects the rise in the consumer price index for food away from home last year and is mandated by law. The new level of assistance applies to all meals served from Oct. 1 to Sept. 30, 1981.

Nutrition programs for the elderly are run by the U.S. Department of Health and Human Services under Title III of the Older Americans Act, with USDA donating food or providing cash in lieu of food to States taking part in these programs. In addition, beginning this year, Indian tribal organizations operating elderly nutrition programs will receive a comparable level of assistance in donated foods or cash under Title VI of the act.

General Interest

USDA Issues "Ideas for Better Eating"

The famous cartoon kid who knew spinach when he saw it wasn't about to be conned into eating his vegetables.

He spoke for a generation of Americans who came to suspect "everything that's good is fattening and everything that's good for me is yuk."

The U.S. Department of Agriculture has taken another step toward laying that old suspicion to rest with the publication of "Ideas for Better Eating," a book of menu suggestions and recipes to help Americans make use of the dietary guidelines.

Publication of the menu guides fulfills a promise made by USDA officials early in 1980 when USDA and the Department of Health and Human Services issued the booklet, "Nutrition and Your Health—Dietary Guidelines for Americans."

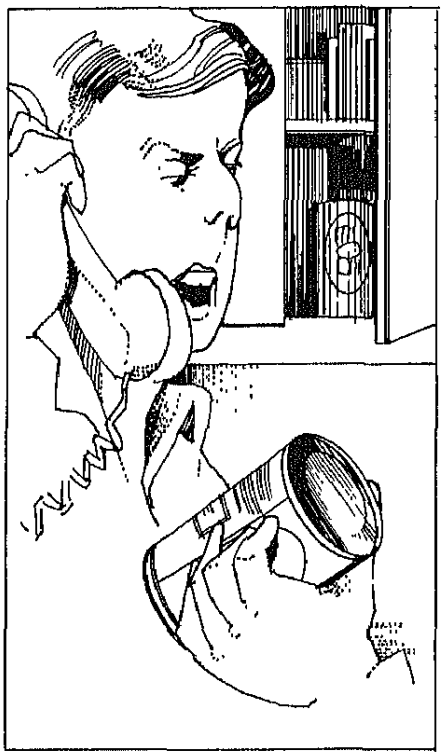
The original guidelines booklet contained seven dietary recommendations with supporting details and explanations of what is known about the relationships of specific dietary substances to some specific chronic diseases and physical conditions.

"Ideas for Better Eating" contains menus showing how the guidelines can be used to create varied and nutritional meals that are enjoyable as well as healthful. Because calorie requirements differ, the menus are designed for different daily calorie levels.

While study after study has shown Americans to be increasingly concerned about nutrition, there is little evidence to suggest ordinary citizens and consumers have the knowledge to translate their concerns into healthy dietary habits.

USDA has been supplying the American people with nutrition information for nearly a century, and this publication is another step forward in answering the continuing need for relatively simple, easy-to-use dietary guidance that is based on the current state of the nutritional art.

According to "Ideas for Better Eating:" "By and large, Americans have an adequate diet. With very little effort, they could have



a better one. In the process, they would increase their chances of staying healthy."

Copies are available for purchase from the U.S. Government Printing Office, Superintendent of Documents, Washington, D.C., 20402. USDA has no copies for sale.

Consumer Questions about Food Products Can Now be Answered Quicker

Questions the public may have about certain food products will be answered quicker and more efficiently now that the USDA has set up a central consumer response system.

Instead of having to call or write several different places with their concerns, consumers will now be able to get answers by contacting one central source. This new system will help us eliminate some of the frustrations consumers experience when they contact the government with a problem.

Legislation

Thomas Stucker
(202) 447-4943

The 97th Congress, which convened last January, faces many important policy decisions this year because a major component of our food and agricultural legal base expires in September: major farm commodity programs, the Food Stamp Program, and agricultural and human nutrition research. All need to be renewed, revised, or replaced.

Authorizations and Appropriations

Before finishing its "lame duck" session last December, the 96th Congress passed P.L. 96-499, the Omnibus Reconciliation Act, to extend until September 30, 1984, the authorization for several programs that were about to expire, and to mandate certain cost-saving provisions for child nutrition programs.

The eleventh hour bill included a reduction in the general cash reimbursement rate under Section 4 of the National School Lunch Act by 2.5 cents for fiscal 1981 (except in districts with 60 percent or more free or reduced-price lunches in 1978-79). Also, for 1981 only, an annual rather than semiannual adjustment will be made to lunch and breakfast reimbursement rates. For the year ending this June 30, the national average value of donated foods is reduced by 2 cents, and breakfast commodity assistance will be withheld beginning with that year. A permanent change sets the reimbursement rate for milk in the Special Milk Program and at least one meal service program at 5 cents.

The 96th Congress also passed the fiscal 1981 agriculture appropriations, which, in addition to embracing several cost-reducing provisions of the Reconciliation Act, provides for food stamp funding of $9,451 billion. An additional $288 million is available "should it become necessary after the Secretary has employed the regulatory and administrative methods available to him under the law to curtail fraud, waste, and abuse in the program." Up to 5 percent of the $9.451 billion may be placed in reserve for use at such time as necessary to carry out program operations.

The food donations program was appropriated $128.7 million, and improvement in donation programs in Trust Territories are required. The feasibility of implementing a food stamp program in the Northern Marianas is to be restudied.

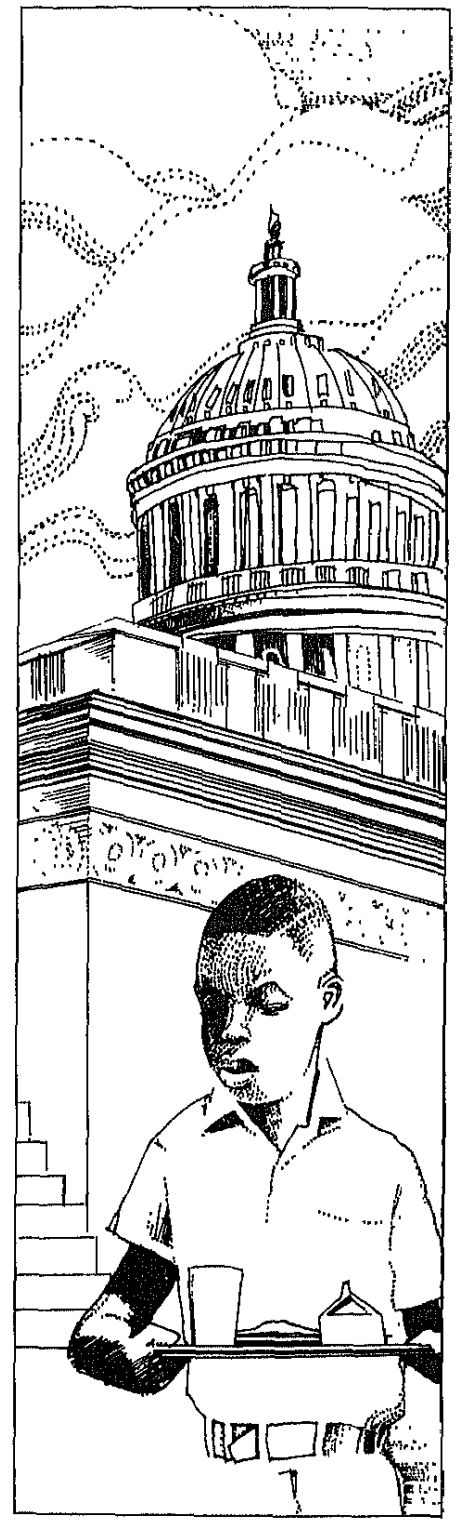
With continuing political pressure to ensure that food stamps reach the truly needy, $5 million of the $84 million total appropriated for food program administration was designated for use in "simplifying procedures, reducing overhead costs, tightening regulations, improving food stamp coupon handling, and assistance in the prevention, identification, and prosecution of fraud and other violations of law."

Pilot Project

A 3-year pilot program testing cash or vouchers in lieu of commodity donations to schools is to be conducted with nearly $2 million from the child nutrition appropriation. The project will include 60 school districts, with results reported to Congress by the end of 1984.

International Food Reserve

An act (P.L. 96-494) which increases price-supporting loan rates for 1980 and 1981 grain deposits in the farmer-owned reserve program also contains an international food reserve provision. Four million tons of wheat currently owned by the Government was earmarked as an international food security reserve for use only in meeting emergency needs abroad when other U.S. stocks are low. The act also (a) directs the Secretary of Agriculture to develop between two and seven domestic demonstration projects in which the USDA would donate food stocks to community food banks for the needy, (b) provides that in any future restriction of exports for national security or foreign policy reasons, the Secretary could set up additional reserves for use as alcohol feedstocks or emergency food use abroad, and (c) authorizes broadened promotion programs under marketing orders for walnuts and olives. ■



Publications

Foreign Ownership of U.S. Agricultural Land, February 1, 1979, Through February 1, 1980, by J. Peter DeBraal. ESS, USDA, AIB-440, November 1980.

Foreigners owned 5.6 million acres of U.S. agricultural land as of February 1, 1980. This is less than 0.25 percent of all land in the United States. While this share is unlikely to have any aggregate affect on agriculture, some communities could be locally affected in areas of heaviest concentration. These conclusions are based on an analysis of reports submitted in compliance with the Agricultural Foreign Investment Disclosure Act of 1978.

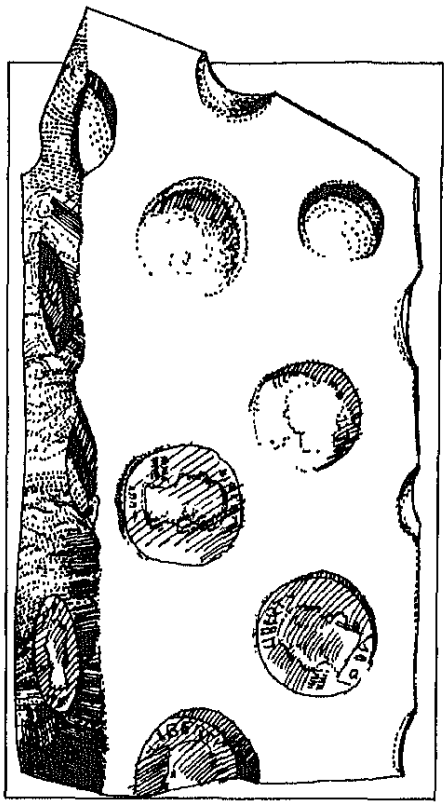
Trade Restrictions in International Grain and Oilseed Markets: A Comparative Country Analysis, by Cathy L. Jabara. ESS, USDA, FAER-162, January 1981.

State trading practices and variable levies, which protect administered price levels set in importing countries, as well as tariffs, taxes, quotas, bilateral agreements, and other policies, tend to restrict the level of competition in international markets.

In addition, many exporting countries implement similar types of policies that restrict or subsidize exports. Quantitative estimates of the degree of protection provided by trade and domestic policies of 18 major importing and exporting countries indicate that wheat and rice markets are the more heavily protected, followed by corn and soybeans. The importance of nontariff barriers in wheat, rice, and corn markets indicates difficulty in enhancing competition in these markets.

Cheese Pricing, by Harold W. Lough. ESS, USDA, AER-462, December 1980.

Cheese prices, key market indicators for the entire dairy industry, rose rapidly in the seventies because of rising demand for cheese. Cheese prices nationwide follow those on the National Cheese Exchange, which itself handles less than 1 percent of



total U.S. cheese production. Retailers usually give cheese the highest profit margin of all dairy products. Since 1973, retail cheese prices have risen more rapidly than wholesale prices. Dairy farmers receive about 48 cents for the milk used in $1 worth of cheese at the retail level. Processing, packaging, and marketing take the other 52 cents.

Performance of Futures Markets: The Case of Potatoes, by Allen B. Paul, Kandice Kahl, and William G. Tomek. ESS, USDA, TB-1636, January 1981.

Futures trading in Maine-grown potatoes on the New York Mercantile Exchange (major trading market for potatoes) performed less effectively in determining potato prices and permitting hedging in the seventies because potato production changed and terms of futures contracts failed to adjust.

The report's authors propose remedial measures, including use of a formula cash settlement, a major change from traditional methods of settling futures contracts. Cash settlements might also solve problems for other commodities.

Consortium on Trade Research. ESS, USDA, ESS-2, December 1980.

Membership in the European Community (EC) for Greece, Spain, and Portugal may reduce trade between the United States and the EC in selected commodities. Prospects for a North American Common Market are not bright; and the diversion of agricultural crops from export to fuel alcohol production would very likely increase rather than reduce, balance-of-payment deficits for the U.S. and Brazil.

Economics and Statistics: Program Results and Plans, 1980. ESS, USDA, ESS-3, December 1980.

The Economics and Statistics Service has two major missions within the U.S. Department of Agriculture: (1) to conduct economic and statistical research analysis; and (2) to collect, develop, and disseminate economic and statistical information related to food, agriculture, natural resources, and rural communities. This report presents significant program results in fiscal 1980 and outlines some priority areas for fiscal 1981 and beyond.

1980 Handbook of Agricultural Charts. ESS, USDA, AH-574. October 1980.

The 1980 chartbook presents 272 charts with brief explanatory text and short tables for greater detail. Major subjects are: the farm, population and rural development, consumers, food and nutrition programs, foreign production and trade, and commodity programs. A final section tells how to order slides or photographic prints of charts in the book.

Publications noted in this section may be obtained by writing the sources listed. For publications without addresses call (202) 447-7255 or write Publications Unit, Room 0054, Economics and Statistics Service, U.S. Department of Agriculture, Washington, D.C. All publications are free of charge unless otherwise noted.

Statistical Highlights

Consumer Price Index for all Urban Consumers, U.S. Average (not seasonally adjusted)

	Annual					1980					
	1977	1978	1979	Apr	May	June	July	Aug	Sept	Oct	Nov
						1967 = 100					
Consumer price index, all items	181.5	195 4	217.4	242.5	244.9	247.6	247 8	249.4	251 7	253.9	256.2
Consumer price index, less food	178 4	191.2	213.0	239.9	242 6	245.5	245.1	246 3	248.6	250 9	253.2
All food	192 2	211.4	234.5	249.1	250.4	252.0	254 8	258.7	261 1	262 4	264 5
Food away from home	200.3	218.4	242.9	263.0	264 6	266.6	267.8	269.5	271.4	273 1	275.3
Food at home	190.2	210.2	232.9	245.3	246.5	248.0	251 5	256.3	258 9	260.0	262 1
Meats[1]	174.2	206.8	241.9	242.6	239 2	238.1	243.3	251 1	257.8	258 7	261.1
Beef and veal	163.6	201.0	255.8	267.0	264.8	263.8	267.9	273 1	277.5	275 8	277.9
Pork	188.8	213.1	216.4	197.1	191.8	190 4	200 3	212.0	222 7	225.8	228 6
Poultry	156.7	172.9	181.5	177 2	176.5	177.9	187.9	197.5	205 2	209.1	204.1
Fish	251.6	275.4	302.3	325.3	324.5	329 1	330.1	331.8	335.8	336.6	343 0
Eggs	166.9	157.8	172.8	161.2	148 4	147.9	154.2	178.3	179 9	175.3	185.2
Dairy products[2]	173.9	185.6	207.1	222 4	226 2	227.2	228.6	229 7	230.6	232.7	235 4
Fats and oils[3]	191.4	209.6	226.3	238.3	239.5	240.0	239.3	242.0	243 6	246.0	247.4
Fruits and vegetables	191.6	212.9	230.0	240.9	246.6	250 1	253 9	258.4	257.4	254.2	253.3
Fresh	193.4	218.5	235.0	245.2	255.1	260.0	265.8	273 0	269.6	262.3	258 3
Processed	188.8	208.7	226.6	238.4	239.4	241 4	243.0	244.5	246.3	247.5	250.1
Cereals and bakery products	183.5	199.9	220.1	242.0	244.5	245.9	247 8	249 2	250.3	253 7	255.8
Sugar and sweets	229.4	257 5	277.6	319.5	326.8	342.0	353.1	355.1	361 1	369.0	381 3
Beverages, nonalcoholic	322.4	340.8	357.8	390.3	393.0	395 9	397 4	402 8	403.9	404 9	405.5

[1]Beef, veal, lamb, pork, and processed meat
[2]Includes butter
[3]Excludes butter

Average Retail Price of Meat Per Pound, U.S.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec	Av.
							Beef, Choice grade						
1965	78.7	78.0	77 3	79.4	81.2	84.9	85.8	84.9	83.7	83.1	83.9	83.6	82.0
1970	100.2	100.0	102.3	102.8	102.4	101.5	103.8	103.5	101 9	101.0	100.8	99.7	101 7
1979	204.9	215.3	225.9	232.8	240.2	233.6	232.2	220.9	226 6	224 3	226.2	232.6	226.3
1980	234.5	234.8	236.2	233.3	230.4	230.6	237.8	242.2	244.9				
							Pork						
1985	56.9	58.1	66.8	56.5	60.2	66.0	69.8	71 1	71.7	70.7	70.5	76 6	65 2
1970	81 4	81.1	80.7	79.3	79.4	79.4	80.0	79.1	76.1	74.0	70.2	67.9	77.4
1979	154.2	157.1	156.9	150.7	149.3	144.5	142.4	135 9	135.6	134.3	132.2	136 3	144.1
1980	135.3	133.2	133.3	127.8	123.8	124.4	138.2	145.7	150.7				

[1]Estimated weighted average price of retail cuts Compiled by Economics and Statistics Service

Producar Price Indexes, U.S. Average (not seasonally adjustad)

	Annual					1980			
	1977	1978	1979	Apr	May	June	July	Aug	Sept	Oct
					1968 = 100					
Finished goods[1]	180 6	194.6	215.9	240.5	241.0	242.6	246.6	249.0	248 9	252.2
Consumer foods	189 1	206.8	226.3	228.9	230.0	231 0	239.5	244 9	245 8	245 9
Fruits and vegetables[2]	192.2	216.5	229.0	223.0	243 8	233.4	247.5	253 8	266.0	240 4
Eggs	162 0	158.6	178 5	153.3	145.7	146 8	159 3	176.9	186.4	175 2
Bakery products	186.5	201.3	221.4	243.0	244 5	246.0	247.1	247 7	249 0	251 9
Meats	170.7	209.6	233.8	216.9	218.7	221.0	240 1	254.0	249.6	251.2
Beef and veal	157.5	202.2	252.2	250.7	254.6	257 2	269.0	276.7	266.7	264 9
Pork	190.1	219.1	205.0	162.1	163 7	169.5	199.8	219.2	221 4	225.9
Poultry	173.3	194 0	188.6	165.7	165.8	165 3	215 5	213.6	227.6	213.1
Fish	294.3	313.0	383.8	386.1	355.2	354.9	364.3	370.3	367 5	350.0
Dairy products	173.4	188 4	211.2	227.8	228.9	229.9	230 5	233.0	234.1	238.4
Processed fruits and vegetables	187.3	202.6	221.9	224.5	225.2	227.3	229.5	230.6	231.9	234 5
Refined sugar[3]	n.a.	108.3	116.3	166.1	221.5	227.3	212.9	232.3	228 9	231 5
Vegetable oil end products	198.6	209.4	223.7	229.9	228.6	229 2	232.7	240.6	240 3	235.7
Consumer finished goods less foods	172.1	183.7	208.1	245 5	246.8	248.8	251.4	252.7	252.3	255.0
Beverages, alcoholic	139.7	148.2	161.3	171.5	172.5	173.2	173 6	179 1	179 8	180.0
Beverages, nonalcoholic	198.1	211.6	227.7	250.4	259.0	259.3	264.1	264.8	267.0	269.5
Apparel	147.3	152.4	160.3	169.1	169.7	172 0	174 1	174.8	174 7	175.5
Footwear	168.7	183.0	217.8	231.9	231.9	232.1	232.9	233.9	235.7	236.8
Tobacco products	179 8	198.5	217.7	237.6	244.6	245.1	247.6	247 6	247 6	248.9
Intermediate materials[4]	201.7	215.5	242.7	274.5	275.8	277.7	280.3	282.6	284.1	286.3
Materials for food manufacturing	181 7	202.3	223.5	238.7	255.4	260 2	262.6	277 5	275.9	296 4
Flour	118.9	141.6	172.1	176.9	183.5	182.6	188.0	190.0	193.5	197.4
Refined sugar[5]	n.a.	109.3	119.3	169.7	212.1	222.0	205.3	225 6	222.6	278 6
Crude vegetable oils	197.5	219.2	243.7	180.7	177.5	179.9	193.3	209.4	219.4	210.9
Crude materials[6]	214.3	240.1	282.2	297.0	300.7	299.5	316 3	327.7	331.8	336.0
Foodstuffs and feedstuffs	190.9	215.3	247.1	235.5	242.9	242.5	263.3	276 5	276.7	279.1
Fruits and vegetables[2]	192.2	216.5	229.0	223.0	243.8	233 4	247.5	253.8	266.0	240 4
Grains	165.0	182.5	214.8	210.8	219.0	215.3	244.8	256 5	260 6	269.2
Livestock	173.0	220.1	260.3	230.5	233.3	240.0	260.5	275.7	266.8	263.0
Poultry, live	175.4	199.8	194.3	171.9	171.3	166.6	227.2	224 5	241.0	222 9
Fibers, plant and animal	202.3	193.4	209.9	266.9	272.7	247 0	267.0	274.6	295.2	278.5
Milk	202 8	219.7	250.0	265.4	265.4	265.5	265.8	271.6	275.5	280.9
Oilseeds	236.7	224.1	245.5	208 9	215.2	214 0	258 5	259.7	278.7	283.1
Coffee, green	505.1	378.2	416.2	448.9	472.3	469.2	424.2	401.2	403.5	403.0
Tobacco, leaf	176.1	191.5	207.8	218.0	n.a.	218.7	217 7	217.7	n a	n a.
Sugar, raw cane	149.5	190.2	209.8	319.3	454.9	401.3	380.8	482.7	457.6	566 6
All commodities	194.2	209.3	235.5	262.8	263.7	265.2	259 8	273.1	274.1	277 0
Industrial commodities	195.1	209.4	236.3	271.3	271.2	273.0	275.6	277.3	278 2	281.2
All foods[7]	186.8	206.5	226.3	231.7	237.4	237.7	245 4	253.9	254.2	258 3
Farm products and processed foods and feeds	188.8	206.6	229.8	229 3	233.9	234.2	246.1	254.8	256.3	258 8
Farm products	192.5	212.5	241.4	228.9	233.6	233.4	253.9	263.6	266.6	263.4
Processed foods and feeds	186.1	202.6	222.5	228.6	233.1	233.8	241.1	249.1	249.8	255 4
Cereal and bakery products	173.2	190.3	210.2	232.4	233.5	233.1	234.6	235.5	238.0	241.3
Sugar and confectionery	177.4	197 8	214.7	275.0	327.4	324.7	313.7	347 1	341.4	399 9
Beverages	201.0	200.0	210.8	227.9	231.4	233.6	234 4	237.3	238.2	236.7
Wholesale spot prices, 9 foodstuffs	208.2	239.1	255.6	235.0	244.4	250.0	270.0	283 7	284.8	290.3

[1]Commodities ready for sale to ultimate consumer
[2]Fresh and dried
[3]Consumer size packages Dec 1977 = 100
[4]Commodities requiring further processing to become finished goods
[5]For use in food manufacturing
[6]Products entering market for the first time which have not been manufactured at that point
[7]Includes all processed food (except soft drinks, alcoholic beverages, and manufactured animal feeds) plus eggs and fresh and dried fruits and vegetables
n.a. = not available

Per Capita Food Consumption Index[1] (1967 = 100)

	1960	1970	1973	1974	1975	1976	1977	1978	1979[2]
					1967 = 100				
Meat, poultry, and fish	90.2	104.8	100.4	105 9	102 9	109.7	109.3	107 2	106 1
Meat	91.9	104.0	97.7	104 6	101 2	107 9	107 0	103 0	100 4
Poultry	75 6	107 5	109.2	111 1	109 2	116 6	120 1	125 8	136.5
Fish	97.0	110.6	121.0	114 6	114 6	121 7	120 3	127 1	124 3
Egg	104 2	97 0	91.6	89.9	87 2	85 3	84.8	86 7	88.2
Dairy products[3]	104.3	99.3	100.6	99.6	100 3	102 2	101 7	102 2	101 8
Fats and oils	96 9	105.9	107.9	104.9	105 5	109.8	106 0	109.5	113 0
Animal[4]	120.0	86.0	75 2	75 0	67.7	63 7	64.8	65 7	70.1
Vegetable	79.9	119.0	131 8	126.8	133.3	143 7	136 3	141 6	144.6
Fruits[5]	107.0	102.0	99 8	99 1	107.7	108.8	107 0	104 9	107 5
Fish	115 2	100.8	93.9	97.2	104.6	106.7	104.0	103.4	105.8
Processed	96.6	103.5	107 4	101 5	111.7	111 5	110 8	106 8	109 7
Vegetables[6]	98.4	102.0	105.1	104.4	103.4	105 0	104.1	104.6	106 7
Fresh	106.5	100.6	100 6	101.3	100 7	106.4	100 5	102.2	103.1
Processed	84.3	100.4	113.0	109.8	108.1	111 4	110.5	108 7	113 0
Potatoes and sweet potatoes	94.6	107 8	106.9	103.9	108.7	107.3	113.6	114.7	120.1
Fish	134.0	94.8	84.0	80.1	90 8	85.2	88 9	80.8	87.9
Processed	58.4	119.7	128.0	125.8	125.2	127 7	134 4	145.9	149.5
Beans, peas, and nuts	95.8	98.1	105.3	102.9	106.5	104.1	101.8	106 8	111.5
Flour and cereal products	102.5	97 8	100.2	99.1	102 0	104.8	102 3	101.4	105 8
Sugar	95.3	106.3	110.4	107.5	104.2	110 8	114.0	113 9	117 0
Coffee, tea, and cocoa	97.7	93.4	97 7	95.3	89.1	93.8	77 5	79.1	84.4
Total food	97.3	102.3	101.9	102 4	101 9	105 7	104.8	104 4	105.7
Animal products	96.3	102.0	98.7	101.7	99.5	103.8	103.5	102 5	102.0
Plant products[7]	98 5	102.6	105.4	103.2	104 6	107.8	108.1	106.5	109.8

[1]Civilian consumption only Quantities of individual foods are combined in terms of 1967 69 retail prices
[2]Preliminary
[3]Excludes butter
[4]Includes butter
[5]Includes melons and baby food
[6]Excludes soup, baby food, dry beans and peas, potatoes, and sweet potatoes
[7]Includes melons, nuts, soup, and baby food in addition to groups shown separately

Selected Livestock Products: Per Capita Consumption Indexes, Quarterly[1]

	1979				1980		
				1967 = 100			
	I	II	III	IV	I	II	III
Meat	100.0	98.4	99.1	101.8	102.2	102.2	100.3
Poultry	123.4	135.3	137.8	149.8	131.0	135.7	128.2
Eggs	90.4	89.4	90.4	93 4	91.4	87.5	88.6
Total	101.6	101.7	102.6	108.8	104.3	104.4	102.8

[1]Civilian consumption Retail weight equivalent Meat includes beef, pork, veal, lamb and mutton Poultry includes chicken and turkey
All data are preliminary
N/A—not available

Civilian Per Capita Consumption of Major Food Commodities (retail weight)[1]

	1960	1970	1973	1974	1975	1976	1977	1978	1979[2]
					Pounds				
Meats	134.1	151.4	142.6	152.5	145.5	155.4	154.7	149.3	147.1
Beef	64.3	84.1	81.1	86.4	88.9	95.7	93.2	88.8	79.6
Veal	5.2	2.4	1.5	1.9	3.6	3.3	3.2	2.5	1 6
Lamb and mutton	4.3	2.9	2.4	2.0	1.8	1 8	1.6	1 5	1.3
Pork	60.3	82.0	57.8	62.2	51 2	54.6	56.7	56.5	54.6
Fish (edible weight)	10.3	11.8	12.9	12.2	12.3	13.1	12.9	13.6	13 3
Poultry products:									
Eggs	42.4	39.5	37.3	36.6	35 4	34.7	34.5	35.3	35.8
Chicken (ready-to-cook)	27.8	40.5	40.7	41.1	40.6	43.3	44.9	47.5	51 5
Turkey (ready-to-cook)	6.2	8.0	8.5	8.9	8.6	9.2	9.3	9.3	10.1
Dairy products:									
Cheese	8.3	11.5	13.7	14.6	14.5	15.8	16 4	17.0	17.6
Condensed and evaporated milk	13.7	7.1	6.0	5.8	5.0	5.0	4.5	4.1	4.2
Fluid milk and cream (product weight)	321.0	296.0	293.0	288.0	291.1	292.0	288.4	286.7	283.2
Ice cream (product weight)	18.3	17.7	17.5	17.5	18.7	18.1	17.8	17 7	17.5
Fats and Oils—total fat content	45.3	53.0	54.3	53 2	53.5	58.0	54.5	56.2	57.7
Butter (actual weight)	7.5	5.3	4.8	4.8	4.8	4.4	4.3	4.5	4.6
Margarine (actual weight)	9.4	11.0	11.3	11.3	11.2	12.2	11.6	11.4	11.5
Lard	7.6	4.7	3.4	3.2	3.0	2.7	2.3	2.2	2.6
Shortening	12.6	17.3	17.3	17.0	17.3	18.1	17.5	18.2	18.9
Other edible fats and oils	11.5	18.2	20.8	20.3	20.3	22.0	21.6	22.6	23 1
Fruits.									
Fresh	90.0	79.4	74.5	78.8	81.3	83.7	80.3	80.4	81.3
Citrus	32.5	28.0	28.7	26.9	28.7	28.5	25.9	26.2	24.0
Noncitrus	57.5	51.4	47.8	49.7	52 6	55.2	54.4	54.2	57.3
Processed:									
Canned fruit	22.6	23.3	21.3	19.6	19.4	19.2	19.9	19.1	19.4
Canned juice	13.0	14.5	15.1	13.2	14.8	14.8	13.9	16.8	17 3
Frozen (including juices)	9.2	9.3	12.2	12.1	14.2	13.8	14.0	12.6	12.3
Chilled citrus juices	2.1	4.7	5.2	5.2	5.7	6.2	5.8	6.2	5.6
Dried	3.1	2.7	2.6	2.4	3.0	2.6	2 5	2.2	3.1
Vegetables:									
Fresh[3]	96.0	91.0	90.8	92.3	91.2	92.4	90.5	92.2	94.2
Canned	45.7	52.9	57.7	56.9	55.1	55.7	55 9	54.2	55.7
Frozen (excluding potatoes)	6.9	9.8	10.6	10.1	9.6	10.2	10.3	10.9	11.5
Potatoes[4]	87.9	74.9	71.1	87.9	74.5	70.3	75.3	70.6	75.
Sweet potatoes[4]	6.4	5.1	4.5	4.9	4.9	4.8	4.5	4.9	5.1
Grains:									
Wheat flour[5]	118.0	111.0	114.0	112.0	116.0	120.0	117.0	117.0	120.0
Rice	6.1	6.7	7.0	7.6	7.7	7.2	7.6	5.8	9.2
Other:									
Coffee	11.6	10.4	10.1	9.7	9.4	9.6	6.9	7.9	8.6
Tea	.8	.7	.8	.8	.8	.8	.9	.7	.7
Cocoa	2.9	3.1	3.4	3.0	2.6	3.0	2.7	2.7	2.6
Peanuts (shelled)	4.9	5.9	6.6	6.4	6.5	6.3	6.4	8.9	7.1
Dry edible beans	7.3	5.9	6.4	6.7	6.5	6.2	6.1	5.9	6.4
Melons	23.2	21.2	19.8	17.1	17.3	18.8	19.3	20.3	19.5
Sugar refined	97.4	101.8	101.5	96.5	90.2	94.6	95.7	93.1	91.1

[1]Quantity in pounds, retail weight unless otherwise shown. Data on calendar year basis except for dried fruits, fresh citrus fruits, peanuts, and rice which are on a crop year basis.

[2]Preliminary

[3]Commercial production for sale as fresh produce.

[4]Including fresh equivalent of processed.

[5]White, whole wheat, and semolina flour including use in bakery products

Note: Historical consumption and supply utilization data for food may be found in *Food Consumption, prices, and Expenditures* Ag. Econ. Report 138 and annual supplements. USDA.

Market Basket of Fsrm Foods

	Annual 1979	Annual 1980	1979 III	1979 IV	1980 I	1980 II	1980 III	1980 IV
Market basket:[1]								
Retail cost (1967 = 100)	222.7	238.8	224.3	225.3	229 8	233 7	242 7	249.2
Farm value (1967 = 100)	228.1	240.3	223 4	225.3	226.1	226.3	253 9	254.9
Farm-retail spread (1967 = 100)	219 6	238 0	224.8	225.3	232 0	238 0	236.2	245 8
Farm value/retail cost (%)	37.9	37.2	36.9	37 0	36.4	35.8	38 7	37.9
Meat products:								
Retail cost (1967 = 100)	241.9	248.8	241.3	239.4	224 6	240 0	250.7	259.9
Farm value (1967 = 100)	234.6	234.0	222.8	223 5	226.9	215.8	248 6	244.7
Farm-retail spread (1967 = 100)	250.5	266.1	263.0	258.1	265 4	268.2	253.2	277.7
Farm value/retail cost (%)	52.3	50.7	49.8	50 4	50.0	48.5	53 5	50.8
Dairy products								
Retail cost (1967 = 100)	207.0	227.4	208.7	215.4	219.4	225 3	229.6	235.4
Farm value (1967 = 100)	234.0	254.9	237.1	245 2	244 7	251 5	258.4	265 2
Farm-retail spread (1967 = 100)	183.6	203.5	184.0	189.4	197.4	202.4	204.6	209.3
Farm value/retail cost (%)	52.6	52.2	52.9	53.0	51 9	52.0	52.4	52.5
Poultry:								
Retail cost (1967 = 100)	181.5	190.8	179.4	172.7	183 7	177 2	196.9	205 3
Farm value (1967 = 100)	199.4	211.7	181.6	186.0	194.9	178.2	239.0	234 4
Farm retail spread (1967 = 100)	164.2	170.5	177.2	159 9	172 8	176 2	156.1	177.1
Farm value/retail cost (%)	54 0	54.6	49.8	53.0	52 2	49 5	59.7	56 2
Eggs:								
Retail cost (1967 = 100)	172.8	169.7	166.1	172.4	166.6	152.5	170.8	189 0
Farm value (1967 = 100)	199.2	190.9	189.6	200 5	181.6	162.5	198 7	220.5
Farm-retail spread (1967 = 100)	134.6	139.2	132.2	131.7	145.0	138.0	130.5	143 5
Farm value/retail cost (%)	68.1	66.5	67.5	68.8	64 4	63.0	68.8	69.0
Cereal and bakery products'								
Retail cost (1967 = 100)	220.2	248.4	223.1	229.2	236.7	244.1	249.1	256 0
Farm value (1967 = 100)	189.9	221.1	203.3	203.1	205.0	211.8	226.6	240.8
Farm-retail spread (1967 = 100)	226.3	251 7	227.2	234 5	243 1	250.8	253.8	259.1
Farm value/retail cost (%)	14.8	15.4	16 6	15.2	14.9	14 9	15.6	16 1
Fresh fruits.								
Retail cost (1967 = 100)	258.5	271.8	293.9	254.8	242.3	272 4	303.6	268 8
Farm value (1967 = 100)	237.6	242.7	266.8	245.9	211 1	251.1	289.6	219.3
Farm-retail spread (1967 = 100)	267.9	284.8	306.0	258.8	256.3	281.9	309.9	291.0
Farm value/retail cost (%)	28.5	27.7	28.1	29.9	27.0	28.6	29.6	25 3
Fresh vegetables:								
Retail cost (1967 = 100)	222.5	242.2	211 1	218.8	216.0	242.5	249.8	260.6
Farm value (1967 = 100)	204.3	215.8	184.7	182.8	164.8	210.8	243.1	244.8
Farm-retail spread (1967 = 100)	231.1	254.7	223.6	235.7	240.0	257.3	253.0	268.1
Farm value/retail cost (%)	29.4	28.5	28.0	26.7	24.4	27.8	31.1	30 0
Processed fruits and vegetables:								
Retail cost (1967 = 100)	226.6	242.5	229.2	231 1	236.0	239.7	244.6	249.5
Farm value (1967 = 100)	235.3	242.8	237.2	242.8	244.0	236.5	245.5	247.3
Farm-retail spread (1967 = 100)	224.7	242.4	227.4	228.5	234.3	240.4	245.0	250.0
Farm value/retail cost (%)	18.8	18.1	18.8	19.0	18.7	17.9	18.0	18.0
Fats and oils:								
Retail cost (1967 = 100)	226.3	241.2	229.3	232.4	235 8	239.3	241.6	248.5
Farm value (1967 = 100)	278.0	249.9	289.0	263 3	247.5	224.7	261.0	266.7
Farm-retail spread (1967 = 100)	208 4	237.8	206.3	220.5	230.9	244.9	234.1	241.5
Farm value/retail cost (%)	34.1	28.8	35.0	31.5	29.2	26.1	30.0	29.8

[1]Market basket statistics are based on the weighing structure of the Consumer Price Index for all urban consumer, (CPI U). Retail costs are based on indexes of retail prices for domestically produced farm foods from the CPI U published monthly by the Bureau of Labor Statistics. The farm value is the payment to farmers for quantity of farm product equivalent to retail unit, less allowance for byproduct Farm values are based on prices at first point of sale and may include marketing charges such as grading and packing for some commodities The farm-retail spread, the difference between the retail price and the farm value, represents charges for assembling, processing, transporting, and distributing these foods.

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